UNIVERSITY OF ALBERTA

EXPLORATIONS OF MARITAL POWER IN HOUSEHOLD DECISIONS ABOUT SHARED HOUSEHOLD GOODS. ARE THESE BARGAINED DECISIONS?

By

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©

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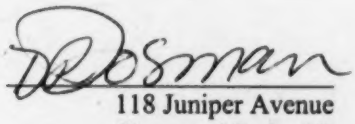

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled EXPLORATIONS OF MARITAL POWER IN HOUSEHOLD DECISIONS ABOUT SHARED HOUSEHOLD GOODS. ARE THESE BARGAINED DECISIONS? submitted by DONNA MAE PERRY DOSMAN in partial fulfillment of the requirements for the degree of DOCTOR OF PHILOSHOPHY IN AGRICULTURAL ECONOMICS.

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Abstract

The allocation of resources within households has been examined using cooperative and non-cooperative game theory. There is a growing recognition that it is important for economic research to include the interaction between social agents as a method of determining how resources are allocated. The weaknesses of these intrahousehold allocation models, then, are that they do not explicitly deal with elements of marital bargaining power and do not adequately address the different types of decision structures. While building on these models, this study attempts to incorporate sociological models that identify the elements of marital bargaining power.

The empirical application focuses on households' decisions regarding a shared household good, a family camping trip. To gain insight into how the household decision reflects the individual partners' preferences, the study involved calibrating individual stated preference data for each partner with their respective household revealed preference data. In addition, a weighting variable was estimated to capture the probability that the pair of weighted partners' preferences predicts their actual household choice. Further estimations were conducted to determine if factors related to marital power had explanatory power for the choice of camping location.

Three major findings arise from the empirical results. First, the preferences for recreational campground characteristics differ between men and women. The parameters of the gendered stated preference models and the welfare measures are statistically different. As well, some of the sociodemographic variables and site attributes that make up the interaction terms differ between the two models. Second, a number of power variables outlined in marital power theory do influence decision-making. However, the bargaining results are contradictory to marital power theory, but are consistent with economic theory of opportunity cost of time. Third, the results of the bargaining model are, in part, contradictory to the hypothesis that shared household goods are an outcome

of a cooperative bargaining structure. In 95% of the households the camping decisions more closely reflected only one of the partner's preferences.

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CHAPTER 1

INTRODUCTION

The area of research undertaken in this thesis involves group decision making at the household level. It is understood that decision making within groups is a complex process. Earlier household economics research did not acknowledge the complexity of the decision-making process in households, but treated the household as a single unit, implying that household decisions are made by a single decision maker. Over the past two decades there has been a growing recognition that this approach to the household is inadequate, especially when analyzing policy issues that affect the household or decisions made at the household level (Smith and van Houvten 1999; Quiggin 1999). For example, studies are often conducted to analyze the effect of a government or corporate policy by predicting their potential impacts on families or households. If the models that are used to conduct this analysis focus on the household as a single decision maker and do not incorporate the preferences of all decision makers in the household, they will not accurately capture decision-making structures and the resulting bargained household preferences. The ultimate result is that the predictions or estimates of welfare measures will be inaccurate. If this is the case, policy selected on the basis of such studies to solve particular problems may not solve the problems, but may in fact exacerbate them. Models that more accurately reflect household decision making will lead to better policy development.

A class of intrahousehold allocation models has evolved that acknowledges that there is often more than one player in a household decision-making process. The predominant alternative to the unitary household bargaining model has been the cooperative household bargaining model. This class of model assumes that the preferences of the players are heterogeneous and that the resulting resource allocations are dependent on bargaining power both inside and outside the relationship. The ability for these models to provide insight into the actual decision-making process is limited due

to the symmetric treatment of each household member and the lack of specification of the allocation process (Katz 1997). More recently, noncooperative household bargaining models have emerged. These models theoretically incorporate heterogeneity of preferences and have begun to include power more explicitly by recognizing that partners may not have perfect information about each other's earnings or consumption and that outcomes may not be Pareto efficient. These models have primarily focussed on unravelling the complexities of the intrahousehold allocation of existing outcomes (Jones 1983; Katz 1992; Fleck 1997). From these types of studies it is difficult to untangle individual preference structures.

The majority of the empirical research employing these models has focussed on issues facing households in developing countries, and there have been a limited number of empirical studies based on decisions made in Western households. These models acknowledge that there is more than one player in the household, and they attempt to incorporate aspects of the bargaining power of the partners implicitly into the models. However, few of these studies explicitly explore the relationships between the decisions and the elements of marital power identified in the sociological literature.

Households are one of the most commonly modelled groups in economics. Because decisions are made in all aspects of the household on several levels, each partner has varying amounts of influence and bargaining power (Sharp and Mott 1956; Davis and Rigaux 1974; Davis 1976; Jenkins 1978; Filiatrault and Ritchie 1980; Nichols and Snepenger 1988; Fodness 1992; Meier, Kirchler, and Hubert 1999). More recently, economists have focussed their household decision-making research on the allocation of resources within the household, using it as an indication of the members' relative bargaining power. The weaknesses within these models are that they do not explicitly deal with elements of marital bargaining power and do not adequately address different types of decision structures and income constraints.

There are two primary differences between the empirical work presented here and earlier empirical work. The first is that this approach, while building on existing intrahousehold models, attempts to incorporate sociological models that identify the elements of marital bargaining power. The integration of sociological and intrahousehold allocation models will provide for a more comprehensive framework that will better capture the process that occurs as individuals bargain and make decisions with one another.

There are three primary goals of this research. One is to recognize that different types of decisions identified in the consumer behaviour literature require different intrahousehold models, either cooperative or noncooperative models. The second, by drawing on game theory, is to develop a framework or model that will incorporate elements of marital power from sociological theory that better reveals the decision-making process in Western households.

The third is to develop an empirical approach to examine the household and individual preferences jointly. In most of the previous empirical work on intrahousehold allocations, the data employed have revealed preference data such as expenditure, agricultural production. or labour supply data. In order to understand the heterogeneity of preferences of individuals within a household and the influence that each member has on a household decision, a different approach is needed which incorporates experimental methods (Katz 1997; Manski 2000). In this study an attempt is made to examine in conjunction both individual preference data and household preference data for a shared household good. The individual preference data for the shared household good are collected from each partner in the household using an experimental method, while the household data are represented by revealed preference data. This approach allows a comparison of the combination of both partners' individual preferences with the preferences generated through household compromises to determine whether the household preferences more closely reflect one set of individual preferences over the

other. In addition, this method will allow for the explicit examination of the relationship of elements of marital power in the bargained solution.

The approach taken in this study is to examine empirically individual and household preferences. Four hypotheses are tested regarding the relationship between individual and household preferences and the effect that marital power has on how the individual preferences are combined to reach the final household decision outcome. The first hypothesis states that men and women have different preference structures, even for shared household goods. The second hypothesis states that different personal attributes and sociodemographic variables influence the preference structures differently for men and women. The third hypothesis is that household preference for shared goods are a compromise of preferences of the two bargainers. The fourth hypothesis is that the bargained outcome is a function of the marital power variables outlined in "gender balance of power" theory (Blumberg and Coleman 1989).

The organization of the thesis is as follows. In Chapter 2 the development of the household bargaining models is reviewed, and aspects of these models are critiqued. In addition, marital power theory from the sociological literature is reviewed and how elements from this theory may be incorporated into household bargaining models is examined. The empirical research problem is presented in the last section of Chapter 2. The econometric theory for the estimation of models, described in Chapter 2, is set out in Chapter 3. The foundation of these models, discrete choice theory and random utility theory, is described. In addition, the welfare theory used to determine the welfare measures in later chapters is outlined. The development and design of the data collection instruments is outlined in Chapter 4. The components of the survey are reviewed and theoretical and empirical justification is provided; as well, the pretesting of the model and the survey samples is described. In Chapter 5 the descriptive statistics for the sociodemographic variables are outlined, and a bivariate comparative analysis conducted between these variables and the perceptions of the respondents of household decisions is

presented. In Chapter 6 the empirical results are outlined. The chapter is divided into three sections: the revealed preference models, the stated preference models, and the bargaining model. In Chapter 7 an overview of the results is presented, and then these results are discussed in relation to the literature. In addition, the limitations of the study are outlined. Finally, the conclusions and ideas for further research are presented in Chapter 8.

CHAPTER 2

INTRAHOUSEHOLD ALLOCATION MODELS

2.1 Introduction

The focus of this chapter is to review the development of the household resource allocation theoretical framework, generate a synthesis of these models, and outline the research problem. The literature review is divided into three distinct sections: the new home economics approach, cooperative household bargaining models, and noncooperative household bargaining models. The objective is to outline the underlying theoretical assumptions of the models, reveal how marital bargaining power is incorporated into the models, and identify the strengths and weaknesses of each class of model. As well, an extension of these models is presented that suggests that the various models accommodate different types of decision-making structures and addresses how elements of marital power from the sociological literature could be incorporated.

2.2 The New Home Economics Approach

Economists' interest in the welfare of the household was evident as early as Samuelson's (1956) study. He developed a household theory that specified the household utility function as a social welfare function and included all members of the household as arguments. Samuelson was not concerned with explaining how welfare was distributed in the household. Instead, he focussed on identifying the criteria under which consumer demand analysis could be conducted. Samuelson illustrated that the social welfare function has the same properties as an individual utility function under specific conditions.

Becker (1976, 1991) extended this view of the household, recognizing the household as a site of production, consumption, and reproduction. A substantial body of literature emerged incorporating this model of the household (Becker 1981; Rosenzweig and Schultz 1983; Rosenzwieg 1990). This unitary model assumes a joint or nonseparable utility function for all members of the household, one that is maximized

subject to pooled household time, production, and income constraints. The model also assumes that there is one decision maker for the household and that individual, who is either an egoist or an altruist, determines the distribution of household resources, income, labour, and household goods—a Pareto optimal outcome. At best, this decision maker is in essence a benevolent dictator who unilaterally determines what is best for all members of the household. The model implies that the same intrahousehold distribution result would be obtained for any given increase in a family's resources no matter which spouse received the resource.

The strong assumptions of a nonseparable utility function and income pooling in the unitary model have been criticized. Ignored is the fact that there are households in which individuals have extremely disparate preferences that can result in conflict, requiring bargaining for a solution. This makes the aggregation of the individual's utility functions into a household welfare function problematic. As well, the unitary model is not equipped to provide explanations or predictions for households in which bargaining takes place between individuals who are acting in a self-interested manner. Feminist theorists have also criticized the model because it does not adequately address issues of power and inequality in the household (Folbre 1986; Katz 1992; Fleck 1997).

Empirical evidence does not support the unitary model in that individual control of income, as compared to household income, has been shown to affect household expenditure patterns. Using Brazilian data, Thomas (1990) found that nonearned income under the control of the mother showed greater positive effects on nutrition and family health than did income under the father's control. Thomas and Chen (1994) indicated that the Taiwan consumption data were not consistent with a unitary model because the type and the quantity of the commodities consumed was dependent on the share of the income attributed to the husband or the wife. Finally, using Canadian expenditure data, Phipps and Burton (1993) illustrated that in dual earner households the source of the income affected the level of consumption in 8 of 12 expenditure categories.

2.3 Cooperative Bargaining Models

In response to concerns about the recognition and aggregation of individuals' preferences, cooperative bargaining models evolved (Manser and Brown 1980; McElroy and Horney 1981). Cooperative household bargaining models (Manser and Brown 1980; McElroy and Horney 1981) recognize that the household does not represent a single utility maximizing unit and draw on game theory to incorporate conflict and negotiation into the decision-making process. A bargaining model of household decision making attempts to elucidate the terms of the contract for the exchange of goods, services, and income between partners (Whitehead 1981). The bargaining models assume that household members have some similar as well as other conflicting heterogeneous preferences and that the resource and income allocations are outcomes of their differential bargaining power. This gives some individuals more weight than others in the decision-making process (Jones 1983). An underlying premise of these models is that there are gains for an individual to be in the partnership rather than being single (Manser and Brown 1980; McElroy and Horney 1981, 1988). That is, an individual's utility while a member of a household is higher than his or her utility when single. As a member of a household the individual benefits from production of shared household goods, joint consumption economies, and companionship. The bargaining process is influenced by each individual's *fallback position*, which is defined by the individual's utility when he or she is single and is determined by factors including the level of wages and wealth outside the household. As an individual's economic condition improves outside the household, so too does the bargaining position within the household because he or she has less to lose. These cooperative structures are self-enforcing.

In the cooperative Nash bargaining model, partners' preferences for their leisure time, l_i, the consumption of private goods, x_i, and household public goods jointly consumed by both partners, x^h_i, are represented in the utility function, U^i. The utility of each partner outside of the marriage is captured in V^i, which has also been called the

threat point or fallback position. This single-state position is an indirect utility, which is a function of the individual's wages, w_i, and prices for one's own goods, p_i^k, and jointly consumed household goods:

$$\max_{x_i, z_i, l_i} \quad N = [U^f(x_f, x_i^h, l_f) - V^f(p_i^{x^h}, p_i^x, w_f)]^* \\ [U^m(x_m, x_i^h, l_m) - V^m(p_i^{x^h}, p_i^x, w_m)] \tag{2.1}$$

$$s.t. \quad p_f^x x_f + p_m^x x_m + \sum p_i^{x^h} x_i^h = w_f L_f + w_m L_m \\ l_m + l_f + L_m + L_f = T$$

For all, *i* refers to the male or female member of the household. This Nash bargaining function is subject to pooled income, $\Sigma L_i w_i$ and time constraints, $\Sigma Li + l_i$. Time is allocated to leisure, l_i, and paid work, L_i. In equilibrium, the household maximizes the product of each partner's gain from cooperation. The gains are specified as the difference between the utility from being a member of the household, U^i, and his or her potential indirect utility in a single state, V^i.

The cooperative household bargaining model differs from the new home economics model of section 2.2 on two elemental levels. First, the cooperative bargaining model assumes separable utility functions for each member of the household. The incorporation of disaggregated utility functions into the cooperative bargaining model distinguishes it from the unitary model (Fleck 1997). Second, the nonwage income and price effects shift both the objective function and the budget constraint. These multiple effects provide more insight into the distribution of goods and the source of bargaining power (Katz 1991).[1]

[1] See Katz (1991) for a detailed analysis of the comparative statics of this model.

The cooperative household bargaining model shares two assumptions with the new home economics model: Pareto efficiency and income pooling. Pareto efficiency is an axiomatic condition of the cooperative Nash bargaining model which stipulates that there will be a Pareto optimal equilibrium (Rubenstein 1982). While there is an assumption in the models that income is pooled, the way in which it is distributed within the household differs. In the unitary model the head of the household determines the rational[2] and efficient allocation, while in the cooperative model the distribution of goods is determined by the fallback or threat point positions. In both of these models it is assumed that both partners have full information about and access to the household income.

One of the distinguishing features of cooperative bargaining models is that an individual's power within the household affects decision making. That is, while household allocation decisions rely on pooling family resources, the decisions are influenced by which individual has greater control over the economic resources. Individuals' access to earned and nonearned income is captured in their threat point,[3] and household decisions are made with bargaining partners taking into account their relative threat point. Any variable that could potentially alter an individual's bargaining power could be considered to enter into the threat point. These variables could be internal to the relationship, such as an individual's level of education (Konrad and Lommerud 1996); or they could be external to the relationship, such as the external environmental parameters (EEPs)[4] outlined by McElroy and Horney (1990). These threat points drive the allocation

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[2] *Rational* means that an individual chooses the alternative with the highest level of utility subject to his or her budget constraint.

[3] The terms *threat point* and *fallback position* are used interchangeably.

[4] McElroy (1990) outlined several extra-household environmental parameters (EEPs) that may shift the Nash equilibrium threat points. These EEPs do not change the prices and nonwage incomes faced by married individuals. The EEPs include variables such as the competitiveness of the marriage market, wealth of parents, changes in government transfers entering or dissolving a marriage, legal structure with

outcomes as they define the relative power and influence that an individual has in the household bargaining process. A change in the individuals' threat point shifts their ability to assert their preferences and alter the power dynamics in the decision-making process.

In Doss's (1996) Ghanain study, she found that the more land that a married woman owned or an increase in her income altered the expenditure patterns of the household. As well, these effects differed across varying income levels. She concluded that an increase in land ownership increases a woman's bargaining power in the household. Lundberg, Pollack, and Wales (1997) examined a policy change in the United Kingdom that transferred child allowance payments to the mother. Using Family Expenditure data from before and after the policy change, they found that the redistribution in income coincided with a strong shift in expenditures towards women and children's clothing relative to men's clothing. Schultz (1990), in his Thailand study, found that there were greater negative nonwage income effects on one's own labour supply than the partner's nonwage income. As well, he found that only the woman's nonwage income significantly affected fertility decisions. In a study using data from seven developed countries, Phipps and Burton (1993) found that they could not reject the hypothesis that the availability of "extra-marital environmental parameters" such as child-support payments and transfers to single mothers affects the behaviour of couples. In another study, Phipps and Burton (1994), using Canadian expenditure data, found that as the relative shares of the household income shift, commodity demands shift too. They found that an additional dollar of male income is often allocated differently than an additional dollar of female income. Thomas (1990) found that a transfer of unearned income to the mother is spent on health and food items, in comparison to transfers to the father which are spent on alcohol and tobacco. Antonides and Hagenaars (1990) indicated

---

respect to marriage and divorce, and changes in tax implications. There are others such as cultural institutions that look down on divorce.

that a husband's share of private consumption decreases as the wife's education, income, and working hours increase. All of these results indicate that a change in an individual's income or wealth can potentially cause a redistribution of allocation outcomes in the household. Who has control of the income does affect allocation decisions.

There is not complete agreement in the literature on how the threat point should be defined. In the earliest models it was defined as the single state for each partner if the marriage dissolved. However, in several empirical and theoretical works the threat point has been modified. Jones (1983) defined it as the wife's withdrawal of agricultural labour if she was getting an inequitable compensation for working in her husband's fields. For Lundberg and Pollack (1993), an unresolved conflict in a marriage did not necessarily lead to divorce, but rather the partners withdrew to more traditional separate spheres of responsibility, alleviating the need for cooperation.

There are two common critiques of the cooperative household bargaining model. First, it is assumed that the income is pooled and both individuals face a joint budget constraint. Empirical evidence has suggested that complete income pooling does not occur in many cultures, but there are sharing rules that differ between households, class, culture, ethnicity, and region (Safilios-Rothschild 1970; Beneria and Roldan 1988; Dwyer and Bruce 1988; Fapohunda 1988; Pahl 1989; Hochshchild 1990; Koopman 1991; Katz 1991; Cheal 1993). Second, by assuming that the utility functions are symmetric, the rules of the game are constrained to be the same for each partner. The model implies both partners' gains from "cooperation carry equal weight in the determination of resource allocation" (Katz 1997, p. 10). Katz suggested that ignoring the endogeneity of the bargaining power in the household resource allocation decisions implies that each individual has equal voice in the bargaining process. However, there are instances in which this may not be true due to differences in personality or prevailing social norms and institutions.

2.4 Noncooperative Household Bargaining Models

To address these concerns, recent household analysis has turned to the noncooperative household bargaining model. The implicit assumption of cooperative household bargaining models is that the fallback position determines bargaining power, whereas in the noncooperative models it is the actual allocational outcomes that indicate the relative power in the household. The Cournot-Nash noncooperative household bargaining model is a dominant model in the literature and is used here for illustration purposes (Ulph 1988; Katz 1991; Ott 1992; Woolley 1993).[5] The framework of the model is one in which the household members jointly rationalize the maximization of their utilities through a bargaining process in which their income and labour are allocated according to their individual preferences.[6] One of the conditions of the noncooperative game is that players cannot make binding contracts or promises because they are not enforceable (Harsanyi 1977). In this framework, household members have a separable utility function, and yet their utilities are interdependent. The partners' utility functions are interdependent in their joint consumption of shared household goods. That is, the total expenditures on shared household goods enter into both individuals' utility function, and the amount that one partner is willing to spend on a household good will depend on how much he or she expects his or her partner to spend on the good and how nonpaternalistic their preferences are.

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[5] To date three different noncooperative bargaining frameworks have been employed in intrahousehold allocation literature (Katz 1997). The first is the Cournot-Nash game, where individuals make their allocational choices based on their own income and time taking their partner's decisions as given (Woolley, 1993; Lundberg and Pollack 1995). The second type draws on the sequential model of Rubenstein (1982). Both time and discount rates can be incorporated into an alternating offer framework that gives the first mover the advantage (Kanbur and Haddad 1994; Fleck 1997). The third type of model is the principal agent model in which one partner has ownership over production, giving the owner an advantage when bargaining over the allocation of household resources (Chawla 1993).

[6] The framework of this model is based on Woolley's (1993) work.

In the non-cooperative household bargaining model, the two partners enter into the relationship because there are gains from the relationship itself and from the presence of shared goods. Each individual's utility is defined over an aggregate level of household goods, x_h, consumption of private goods, x_i and leisure time, l_i:

$$U_i=U_i(x_i,x_i^h,l_i) \qquad (2.2)$$

In Woolley's (1993) model, the partners make three decisions: how they will allocate their time between work, L, and leisure, l; what portion of their income they will allocate to the consumption of goods, x_i, and x_i^h; and last, how much of their earned income they will transfer to their partners, π_{ij}.

Partners must allocate their total time, T, between their leisure and their paid work. Their welfare is constrained by their choices made about their time budget:

$$T_i = l_i + L_i \qquad (2.3)$$

The last two choices include determining what portion of their earned income they are willing to allocate to the consumption of private and shared household goods and what the net transfer of income to their spouses will be. These choices are specified in the budget constraint:

$$w_i L_i + \pi_{ij} = p_h x_i^h + p_i x_i \qquad (2.4)$$

The Cournot-Nash solution involves the maximization of each partner's welfare function. Partners choose their allocations independently. These decisions can be made simultaneously, or the partners can alternate. The strategy for the partners is to maximize their own utility given the strategy of their partners. This is called the *best reply strategy*, and when a combination of mutual best replies are made, an equilibrium point is reached. Given that the preferences of each partner are well behaved, the problem can be solved

similarly to a standard consumer demand problem. The total demand for shared household goods by partner i is as follows:

$$x_i^h = x_i^h(p, w_i T + p_h x_j^h; \overline{x_j^h}, \overline{l_j}) \tag{2.5}$$

where $p=(p_h,p_i,p_j,w_i,w_j)$ is a vector of prices. Each partner's reaction function is given by the following:

$$x_i^h = \max [0, x_i^h(p, w_i T + p_h x_j^h; \overline{x_j^h}, \overline{l_j})] \tag{2.6}$$

The interactions between family members and their individual resource allocations are defined in the reaction functions. The slope of a reaction function defines the individual's marginal propensity to make expenditures for shared household goods out of income. The lower partner i's marginal propensity is, the more i will decrease his or her expenditures on shared household goods when partner j increases his or hers.

Households who operate in a noncooperative manner still enjoy gains from marriage in the form of joint-consumption economies, and the members benefit from the production of household public goods. Lundberg and Pollack (1993) pointed out that the provision of household public goods by household members is analogous to the voluntary provision of public goods analyzed by Bergstrom, Blume, and Varian (1986). In the absence of cooperation, the provision of household goods such as home repairs, meals, and childcare results in undersupply.

The noncooperative household bargaining models have four underlying assumptions that differentiate them from the unitary household model and cooperative household bargaining models. First, similar to the cooperative models, there are separable utility functions for each partner in the household. With this assumption, the determination of household preferences and resource allocations is no longer blurred as in the unitary model. Individual resource allocations and demands are now responsive to changes in both gendered prices and wages.

Second, the individual face their own income constraint, including their earnings and transfers from other members of the household. This can collapse into a pooled income constraint if both members share all their income. Individuals, given the intrahousehold transfers, allocate their own time and income with respect to their own preferences and their expectations of their partners' actions. These allocation decisions are integrally tied up in the functional relationship between labour and gender within the household.

The third assumption is that the nonpooled income constraint allows for asymmetric information to be built into the model. In both the cooperative and the unitary household bargaining models, perfect information is assumed regarding threat points, full income, and resource allocations. However, there are a number of studies that indicate that an individual is often unaware of how his or her partner's time, assets, and income are allocated (Jenkins 1978; Dwyer and Bruce 1988; Pahl 1989, 1995; Hochschild 1990; Koopman 1991; Meier, Kirchler and Hubert 1999).

The fourth assumption is that contracts are nonbinding (Haddad and Hoddinott 1994; Katz 1997; Fleck 1997). Under certain circumstances the allocational outcomes are lower than they would have been in a cooperative model because individuals may have an incentive to opt out of the contract in order to maximize their own welfare. In some cases individuals may be worse off than they were to begin with. These breakdowns in the contracts do not necessarily lead to divorce, but often lead to inefficient allocation of household resources (Katz 1991; Lundberg and Pollack 1993). The result of the imperfect information and the nonbinding contracts is that the allocational outcomes of noncooperative models are not Pareto efficient.

2.5 Integrated Models

Researchers, especially those conducting empirical studies that attempt to understand the process through which household bargaining power is demonstrated, have found it necessary to incorporate elements from both the cooperative and the

noncooperative frameworks in order to be able to capture the complexity of the household dynamics.

Jones (1983) modified early household bargaining models to more accurately reflect Cameroon agricultural households by respecifying household income to better reflect differences in prices for agricultural commodities and gendered expenditure responsibilities. She also reconceptualized the fallback position so that, rather than the result being the dissolution of the marriage, the fallback position involved the withdrawal of labour exchanged with one's partner. In the withdrawal option the partners must rely on their own income to purchase the commodities for which they are responsible. The key difference between the two options is that there is no sharing of income between the two partners in the fallback position, implying a noncooperative situation.

Lundberg and Pollack (1993) envisioned the household as a cooperative Nash bargaining institution. The model differs from earlier models in which the threat point was determined to be the utility of each individual outside the marriage—essentially, a divorce. Lundberg and Pollack in their separate spheres model suggested that a viable alternative to this threat point is one that is internal to the marriage in which the husband and wife settle their differences with an inefficient noncooperative outcome through a Nash bargaining process. They argued that the partners gain some benefit in the noncooperative outcome from their joint consumption of household public goods. However, in the noncooperative equilibrium, joint production of shared household goods and public goods results in undersupply, which leads to an inefficient and suboptimal solution that may be more preferable to both partners than divorce. The ultimate threat point for the couple in disagreement is still divorce.

Konrad and Lommerud (1996) integrated both noncooperative and cooperative elements. They modelled the everyday decisions in a Nash bargaining cooperative framework, but they argued that long-term human capital investment decisions should be modelled as noncooperative decisions.

The models discussed earlier are static, and by introducing dynamics into the modelling process, a clearer understanding of how power affects the process of household bargaining can be elucidated. Dynamic modelling can better capture the interplay that occurs between two individuals in a decision-making process. The dynamic strategic form of a game outlines how the game will be played and the process of the trade or exchange. Technically, in game theory, power is defined by the asymmetry in the bargaining process (Binmore, Rubinstein, and Wolinsky 1986; Osborne and Rubinstein 1990). In the bargaining process two players have symmetric bargaining power if they both have perfect information about their bargaining partner and make simultaneous offers.

There have been empirical studies that have employed a dynamic strategy game in a model that combines elements of both the cooperative and the non-cooperative household bargaining models. In Katz's (1991) reciprocal claims model, she nested a noncooperative model in a cooperative model to examine the compensation of women farmers' unpaid work on their husbands' land in agricultural households in Guatemala. Early in the season women are compensated for their work in the form of an income transfer from the ultimate sale of the harvest. Partners make their own resource allocation decisions and then bargain over the exchange of goods, income, labour, and services. These allocation decisions are independent of the other and must take into account the set of reciprocal claims that their partners have on their own resources. These sequential actions of consumption and labour supply create a series of claims on the other individual. If the woman worked in the field, she then has claims on her husband's future income; and if the man paid his wife, then he has claims on her labour. This equilibrium of reciprocal claims is achieved through the Nash bargaining model in which the product of each partner's gain to cooperation is maximized. In this model the withdrawal or fallback option is characterized by the lack of transfers of income and labour in income-generating activities between the partners while they continue jointly to produce common

household goods. This joint production of shared household goods is the absolute minimal level of common activity short of the dissolution of the household. The equilibrium value of the transfers is based on individual preferences and on the bargaining power captured in the fallback point. In this model the negotiation is over the magnitude of the transfers rather than being directly over the individual allocations of income and time, because these allocations occur primarily in separate production spheres.

Ott (1992) developed a dynamic model that explores the potential for the accumulation and deterioration of human capital. *Human capital* is defined as on-the-job training or specialization in household production, thus allowing for endogeneity of outside options. The model allows for several time periods and assumes that individuals' human capital investments will be made to best influence their bargaining positions through higher income in the future. Ott examined binding and nonbinding types of contracts and found that in binding-contract situations the specialization in household work is efficient and no bargaining power is lost. In contrast, in the nonbinding model specialization in household work diminishes a woman's bargaining power in the second period. Incomplete specialization is expected and efficient in a nonbinding situation, but the magnitude of the surplus is smaller.

Fleck (1997) incorporated dynamics into her model in two ways. By including a set of sequential decisions, the first mover advantage is created by a discount rate of time in favour of the first mover. Secondly, the model allows for allocation decisions to occur over a lifetime. Fleck explored Honduran women's decisions to work outside the home. The husband has the asset-based power in this model and has first mover advantage. In order to gain control of a greater portion of the bargaining process and expenditures, the husband is willing to sacrifice some of the household income provided by his wife by demanding that she stay at home. One of the outcomes is that, by not working outside the home, the woman decreases her options to leave the marriage. Fleck estimated the

probability that a woman works outside the home. She compared the explanatory power of estimation including variables representing the wife's outside options[7] to a proxy variable for the husband's opinion about whether his wife should work outside the home. She found that the proxy variable for the husband's approval outperforms the outside options model. She concluded that, should the husband disapprove and exert bargaining power, the wife will do worse in each consecutive bargaining round.

2.6 Extensions of Existing Household Bargaining Models

In order to reflect decision making in Western households more accurately, the appropriate intrahousehold allocation framework needs to be chosen. Consumer decision theory provides guidance for this choice of framework in that it recognizes that decision structures differ depending on the good. In addition, elements of marital power theory should be incorporated into the modelling framework power which provide insight into the compromises that exist in shared decisions. Cooperative and noncooperative household bargaining models have distinct characteristics which make them appropriate to model different types of household decision structures.

A characteristic of Western households is that even if households are cooperative, a variety of decision-making strategies still exist. Consumer behaviorists have identified four classes of decision-making structures: wife dominated, husband dominated, autonomic, and syncratic (Bonfield 1978; Nichols and Snepenger 1988; Engel, Blackwell, and Miniard 1993).[8] These structures are influenced by the type of product, the stage in the decision process, and the nature of the situation surrounding the decision (Engel, Blackwell, and Miniard 1993). There is growing empirical work in the

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[7] Outside options include wage disparity, age of children and type of conjugal contract, and sociodemographic characteristics such as age difference.

[8] *Autonomic* is a case in which both spouses can make the decision, and the probability that one spouse or the other makes the decision is equal. *Syncratic* is a case in which the decision is made jointly by both husband and wife (Engel, Blackwell, and Miniard 1993).

intrahousehold allocation and the consumer behaviour literature that supports this heterogeneity of decision making. Rules for resource allocation decisions may differ depending on the resource, as Meier et al. (1999) found in their study comparing decision-making structures for different types of investments to different types of banking strategies. Phipp and Burton (1994) found that there were different rules for some categories of goods, such as personal and private goods, and that the income-pooling constraint was rejected for these goods. However, for goods that had significant "public or shared goods" dimensions, such as transportation and housing, income pooling could not be rejected. These various decision structures need to be modelled in different modelling frameworks: the cooperative household bargaining model for shared household goods and the noncooperative household bargaining model for private-consumption goods.

One key difference between these two frameworks is in the way that their income constraint is defined. In the cooperative model income is pooled, and in the noncooperative model income from partners is not pooled, although portions of the income may be shared between spouses. Research in household financial management has suggested that strategies can range from individuals retaining control of their own income to pooling all household income. In the noncooperative situation the goods and services purchased are considered private property of the individual who earned the income (Safilios-Rothschild 1970; Beneria and Roldan 1988; Fapohunda 1988; Pahl 1989; Katz 1991; Koopman 1991). Using data from developed countries, researchers examined the financial management systems that households employed and found a variety of strategies. The most common was a flexible form of shared income. Cheal's (1993) work on Canadian households indicated that there are three broad types of financial management systems: flexible sharing, joint, and independent.[9] Both Cheal

[9] *Flexible sharing* is having joint and separate accounts in which major expenses are paid for out of a joint account, and each partner gets personal spending money. Access for either individual to the total

(1993) and Pahl (1995) found that the majority of the households pooled their income to some extent and that there was not a trend toward separate management. In fact, an increase in the level of female employment is associated with an increase in joint pooling, and for women there is a greater degree of financial autonomy. In households in which the men were the sole providers, the income was pooled and women were given a housekeeping allowance. In similar work Treas (1993) found that if the wife was working, she was more likely to have her own bank account even if the majority of the household income was pooled. As well the probability of a separate account increased as the wife's level of education increased. These empirical findings indicate that while the trend is towards pooling household income in many households in which there are two incomes, a portion is set aside by the earner for his or her own personal use. While each partner has access to the pooled income, the personal amount that each individual sets aside is not always equal (Cheal 1993). These findings suggest that the type of good being studied and the type of financial management system in place in the households will determine the most appropriate modelling framework to use.

Another key issue is how power can be incorporated into the models. In a cooperative framework should the couple ultimately not be able to compromise, the threat point can be defined as either the withdrawal of a partner's resource contribution to the shared household decision, with the partners allocating their portion of the pooled income according to their own preferences.

Bargaining power has typically been built into the threat point of the model by incorporating relative contributions to the shared household good and to the pooled income, as well as the partners' willingness to walk away from the decision. One of the

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household income is shared but incomplete. Neither partner has access to the other partner's personal spending money. Joint/pooled is also called the *corporate family fund* and relies heavily on joint possession for collective spending, with small amounts put aside for individual expenses. In *independent management*, a dual-career family has two reliable incomes that are managed separately.

axioms of the cooperative Nash bargaining model in a static setting is that the outcomes are symmetric and that all asymmetries between the players are captured in the strategies (Binmore, Rubinstein, and Wolinsky 1986). In a household the asymmetry in the partners' ability to influence a cooperative decision to more closely reflect their preferences than their spouses' can enter the model through the use of a weighting variable, δ, 1≥δ≥0, which enters the optimzation process in the following fashion (Kooreman and Kapteyn 1985; Binmore, Rubinstein, and Wolinsky 1986; Kooreman and Wunderwink 1997):[10]

$$max(U_i - V_i)^{\delta} * (U_j - V_j)^{1-\delta} \qquad (2.7)$$

The closer δ is to 1, the greater the bargaining power of partner *i*. The δ can represent elements not fully captured in the threat point and can capture the individual's voice in the cooperative bargaining process (Katz 1997). Because the cooperative bargaining literature has offered little guidance in terms of how to assign values to this weight, the theory of marital power from sociological literature is built into the model.

Blumberg and Coleman's (1989) theory of gender balance of power in the household identifies the important elements that should be included in modelling power in the household. Their conceptualization is based on dividing power into three components: power bases, power processes, and power outcomes. The theory suggests that the wife's power base is a function of her overall economic power, which consists of her absolute earnings (Blood and Wolfe 1960; Doss 1996), the ratio of her earnings to her husband's (Lundberg, Pollack and Wales 1997), and over what portion of the income she has independent control (Blumberg 1985, 1988; Dwyer and Bruce 1988; Pahl 1989 Dobblesteen 1992). These power bases can then be modified by micro and macro factors

[10] In household bargaining this model was empirically tested in research by Kooreman and Kapteyn (1985). In their model on preferred versus actual labour supply, Kooreman and Kapteyn treated the power variable, δ, as exogenously given and independent of the characteristics of the partners. Their results found the variable to be insignificant.

defined as power processes. The micro factors include personal ideology (Qualls 1987; Blumenstein and Schwartz 1991), attractiveness, and the perceived need for the income; while the macro factors include societal ideology, class, ethnicity, and male domination of the political economy. All these factors modify the wife's overall economic power and result in a level of influence that she has in the power outcomes. These power outcomes include the influence the wife has in the relationship with respect to decision making (Kaufman and Strohmeier cited in Ott 1992; Dobblesteen 1996), division of labour (Blumenstein and Schwartz 1989), and ability to resolve conflicts.

2.7 Research Problem

Considering the large number of economic decisions made within groups such as households, there is a general lack of empirical research conducted on decision making in households that has attempted to untangle the influence of marital power on household decisions. Several researchers (Kooreman and Kapteyn 1990; Katz 1997; Manski 2000) have indicated a need for empirical work on bargaining, incorporating information on individual preferences. The research in this study will focus on a decision for a single shared household good under the assumption that both partners have input into the decision. Studies on household decision making about family vacations have generally found that decisions on vacations are one of the most democratic decisions and as such are a suitable good for this research (Sharp and Mott 1956; Filiatrault and Ritchie 1980; Nichols and Snepenger 1988; Engel, Blackwell, and Miniard 1993). Based on studies by Jenkins (1978) and Davis (1976) it is not clear whether both spouses have input into all aspects of the decision process, but it is obvious that they each have influence into various subdecisions.[11]

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[11] Jenkins (1978) replicated an earlier study by Davis (1976) which examined whether couples break down the decisions into subdecisions and examined whether different types of subdecisions were handled more by women or men. Jenkins found that men dominated the vacation information collection and decisions on length of trip, timing, and expenditures; while joint decision making between the husband and wife was common for subdecisions such as whether to take the children and the mode of transportation. Others found that the amount of influence that one spouse had over the decision process often was a

As a shared good, the vacation decision is preferable as a focus of analysis to either durable goods or smaller goods that are purchased more frequently. Though individuals could have strong preferences over durable goods, such as the purchase of a vehicle, these purchases occur too infrequently for this type of analysis. Smaller, more frequently purchased goods, such as groceries, are inappropriate because individuals may not hold strong enough preferences for particular brands of goods.

The cooperative household bargaining model will be used to examine this decision with the assumption that household members pool at least a portion of their income from which the expenditure for a family vacation will come, and together they must decide how much they are willing to spend on their vacation. In instances in which the partners cannot agree on what type of vacation to take or the location of the vacation, they may take individual holidays, or they may choose not to go on a vacation and spend their leisure time at home at other activities. The threat points in this context are that they could each withdraw their contribution to the vacation, resulting in no vacation, or they could decide to take separate vacations. If the outcome of the cooperative model is separate vacations, then the good is no longer a joint good and the allocation and consumption decisions may be better modelled in a noncooperative decision framework.

Choosing the type of holiday to take becomes an interesting problem when the preferences of the two decision makers differ from one another. For example, one individual may prefer a rustic camping and fishing holiday, while the other may prefer a more luxurious holiday renting a cabin in the mountains, or to stay at home. Each individual knows the other's preferences. The final holiday choice will be influenced by a number of factors. First, individual and/or household time and budget constraints may limit the choice set of holidays. That is, holidays that are too expensive or will take too

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function of the type of household (Filiatrault and Ritchie 1980). They found that if there were children in the household, the wife had more influence; and that decisions were also sensitive to marital status.

much time will not be in the choice set. A second set of factors comes into play when time and income are not constraining factors. These factors are less tangible and are difficult to measure but reflect the decision-making structure and the power relations in the household. If the holiday is going to be paid for out of a joint household account into which both individuals contribute but one individual has more influence than his or her partner over decisions, then there may be more at play in the power structure than relative income. The influence may be a result of the fact that this holiday is more important to one individual than to the other or that there have been compromises made over several related decisions so that the individual who did not get their holiday of choice last time may get to choose this time. Another scenario may be that one individual has substantially more influence over all decisions because of the differential bargaining power that exists in the household.

It is recognized that household members have both conflicting and complementary preferences and that the final household decision at any level will likely be a bargained decision, with the partner with the most power having his or her preferences more strongly influencing the decision. The major objective of the study was to implement an empirical method of combining stated and revealed preference data to examine the influence of each individual on household decision making. In addition, this method also allowed for the examination of the effects of marital power on household decision making. As well, an attempt has been made to investigate empirically which household characteristics drive a household decision-making process for family camping vacations and to explore whether these characteristics provide an insight into the constructs of household bargaining power.

The methodological approach taken in this study was to examine a bargained household decision on a family camping vacation by comparing data collected from the partners about their own preferences for camping sites and data that represent previous household camping decisions. The individual preference data were calibrated with

household decision data using a weighted bargaining model as proposed in equation [2.7]. The calibrated estimation weighed the two sets of preference data to determine whether the household decisions more closely reflected one partner's preferences or whether the household decision was a combination of both of their preferences. Essentially, this weighting variable, δ and $1-\delta$, will represent the level of influence or power that each partner has over the decision process. The calibration equation estimated is as follows:

$$V_n = \delta(s_n)(q^h \beta^m) + (1-\delta(s_n))(q^h \beta^f) \qquad \textbf{(2.8)}$$

where V_n represents the indirect utility of the household based on the camping trips taken; q^h is the vector of attributes of the camping sites visited; β^i is the parameters derived from the individual stated preference data; and δ is the parameter for marital power and is a function of household and individual characteristics, s_n.

The household decision data to be used are revealed preference data, while the individual preference data to be used are stated preference data. The next chapter outlines the theoretical and econometric foundations for these estimation procedures.

CHAPTER 3

METHODS

Modelling Household and Individual Preferences

3.1 Introduction

The aim of this study is to examine household decisions for a shared good by comparing the combined preferences of the household members to the individual members' stated preferences and to determine how the household power dynamics may shape the individual preference structures into actual household decisions. To enable this comparison, our empirical approach utilizes two different types of discrete choice data. The first type of data represents the actual household decision, and the second type represents the stated preferences of each partner. The theoretical foundations for modelling discrete choice data are found in consumer demand and random utility theory.[12] Section 3.2 will review the theoretical foundations for this modelling approach, and section 3.3 will describe in more detail the types of preference data collected for analysis.

3.2 Theoretical Background

In a case in which individuals in a household are faced with choosing one alternative (a recreational site) over other alternatives in their choice set, their choice can result in corner solutions in the utility maximization problem. To deal with such cases, an alternative approach is to use discrete choice theory, which is based on the theoretical framework, a random utility model (RUM). The next two sections outline these theoretical frameworks.

[12] The modelling techniques employed in this study are drawn from the recreational and environmental economics literature.

3.2.1 Consumer Theory: A Discrete Choice Approach

Consumer theory models how individuals and households make consumption decisions constrained by their level of income and time.[13] It is assumed that individuals' preferences are consistent and transitive and that individuals are rational. Rationality means that individuals choose the highest utility subject to their budget constraint. Consumer theory suggests that individuals choose a consumption bundle:

$$X = \{x_1, \ldots, x_n\} \qquad (3.1)$$

where $x_1, \ldots x_n$ are quantities of goods and services. Let x_i represent a recreational site. If an individual chooses to return to the same site several times in a season, x_i can be modelled either as several independent trips or as the frequency with which the site is visited by each individual. For the purpose of this research x_i represents the choice to go to a site, and each trip is treated independent of other trips. The utility function defines the individual's preference ordering, so that if an individual prefers site x_1 to site x_2, then $U(x_1)$ is greater than or equal to $U(x_2)$.

For any site i, let q_i be the site characteristics associated with x_i. Consumers are assumed to maximize utility subject to their budget constraint. This is written as follows:

$$\text{Max } U = (x_1, \ldots x_n, q_i, \ldots q_n, Z) \quad \text{s.t.} \sum P_i x_i \leq M \text{ and } x_i x_j = 0 \qquad (3.2)$$

where: x_i is the goods/sites which are mutually exclusive, $i = 1 \ldots n$; q_i is the vector of site characteristics; and Z is the numeraire good. The condition $x_i x_j = 0$ suggests that the recreational sites are mutually exclusive. This condition is the basis of discrete choice theory (Ben-Akiva and Lerman 1985). According to discrete choice theory, demand for each good would take on a value of 0 or 1 (1 if the site was visited and 0 if the site was

[13] Discrete choice theory and RUM framework are both appropriate methods to model either household or individual consumption decisions. In this study both household and individual decisions will be modelled. For the purpose of this discussion the term *individual* will be used, though the term *household* could be substituted.

not visited.) Stated another way, a camper cannot be at two sites at one time; hence if x_1=1, then x_2=0. There are a number of factors that influence individuals' choice, such as the number of sites in the choice set and the attributes of each of the sites. In the deterministic case, the utility that individuals receive by choosing site i from the choice set n is represented as U_{in}. Alternative $i \in C_n$ is chosen when $U_{in} > U_{jn}$, for all $j \neq i$, $j \in C_n$.

The conditional indirect utility function representing the attributes of the alternatives in the choice set is the foundation of discrete choice theory. Let V_i be

$$V_{in} = (q_{in}, M - p_{in}, s_n) \qquad (3.3)$$

where the indirect utilities are a function of the vector of site attributes, q_{in}, of the alternative i as perceived by individual n, the portion of pooled household income, M, the price of the good, p, and s_n, a vector of characteristics of the individual, n, which can include socioeconomic and power characteristics of the individuals that capture differing tastes and other variabilities that exist across the survey respondents.

3.2.2 Random Utility Model

Economists use demand and choice theories to derive the demand for and the value of goods and services. In the RUM framework individuals make choices that will bring them the greatest level of satisfaction subject to their constraints; most commonly, time and income. Within this framework, attributes of the recreational sites enter into the individual's utility function. However, due to unobservable elements, the individual's choice may deviate from what the researcher expects to be the preferred site. These variations in choices are explained by the introduction of a random element as a component of the individual's utility function; that is:

$$U_i = V_i + \varepsilon_i \qquad (3.4)$$

where U_i is the unobservable, true utility of individual i; V_i is the observable portion of the utility; and ε_i is the random component. According to the literature, there are four

sources of the random component: tastes are not observed, unobserved attributes are not included in the experiment, data have measurement errors, and models are misspecified (Ben-Akiva and Lerman 1985). The presence of this random component allows the analysis of an individual's choices in a probabilistic framework. We can then model the probability that the individual will choose the *i-th* recreational site from some set of sites, in C_n, which is expressed as follows:

$$\Pr(i|C) = \Pr[U_i > U_j] = \Pr[(V_i + \varepsilon_i) > (V_j + \varepsilon_j)], \forall j \in C_n \qquad (3.5)$$

The observable, systematic component of utility, V_i, is that portion of the good's desirability that can be related to its attributes. Our ability to capture this relationship is dependent on how well we identify, measure, and include the key factors that can influence the choices being made. Once the attributes are identified, how these variables combine to drive the systematic component of the utility function must be specified. The formal relationship between explanatory variables and choice behaviour is specified in the indirect utility function. The systematic component is expressed as a function of the parameters and the explanatory variables as follows:

$$\Pr(i \mid C_n) = \Pr[U_{in} \geq U_{jn}; \forall j \in C_n; i \neq j] \qquad (3.6)$$

$$Pr(i \mid C_n) = Pr[(\beta' q_i + \varepsilon_i) \geq (\beta' q_j + \varepsilon_j); \forall j \in C_n; i \neq j] \qquad (3.7)$$

$$Pr(i \mid C_n) = Pr[(\beta' q_i - \beta' q_j) \geq (\varepsilon_i + \varepsilon_j); \forall j \in C_n; i \neq j] \qquad (3.8)$$

where β is a vector of coefficients associated with q, a vector of explanatory variables. Equation 3.8 could refer to the indirect utility function of a household or of an individual. It suggests that the probability that an individual will choose good *i* from within the choice set equals the probability that the combined systematic and error components of good *i* are greater than the comparable components for all other competitive goods.

The RUM framework is appealing for several reasons. First, this approach examines the choice from a number of discrete sites or bundles of attributes. Second, each site is a function of attributes and travel costs that can inform planners and policy makers of the importance of various attributes and how changes in them influence site choice. Third, from these models the analyst can calculate welfare measures that result from changes to any of the attributes.

3.2.3 Welfare Measures for RUM

Welfare measures can be calculated by converting a change in utility, in response to a change in the site attributes, into a monetary measure. There are three distinct welfare measures: consumer surplus, compensating variation, and equivalent variation. Consumer surplus is derived from Marshallian demand curves and is not consistent with RUM welfare estimation because RUMs provide estimates of the parameters of the conditional indirect utility functions. Hanneman (1982, 1984) outlined welfare measures for the RUM framework using compensating or equivalent variation. Compensating variation measures, for a given change in a site or level of attribute, the amount of money that is needed to be given/removed to bring an individual or household back to its original utility. On the other hand, equivalent variation measures the amount of money required to ensure that the individual or household at the initial scenario is as well off at the new utility level for a given change in the site. Differences between compensating variation and equivalent variation are dependent on the individual or household's income elasticity and the magnitude of the surplus. However, the income effect is ignored in the model used for this study, and as a result the compensating and equivalent variation measures would be the same. Compensating variation is the welfare measure most preferred in the environmental and recreational literatures (Freeman 1979; Braden and Kolstad 1991; Adamowicz 1995).

In the discrete choice framework, a welfare measure can be calculated on a per-trip basis, capturing the change in welfare for a given change in a site attribute.

Hanneman's (1982, 1984) formulation for the welfare measure accounts for the stochastic nature of the discrete choice framework by using the expected value of the indirect utility function. The compensating variation measure for a change in a site attribute at site i can be specified as follows (Hanneman 1984):

$$CV = -\frac{1}{\mu}\left\{\ln \sum \exp(V_i^0) - \ln \sum \exp(V_i^1)\right\} \qquad (3.9)$$

where the summation is over all the alternatives in the choice set and μ is the marginal utility of income. Multiplying by $1/\mu$ transforms the resulting change in utility to a monetary measure of welfare. The term V_i^0 represents the level of utility at the initial state, and V_i^1 is the level of utility after a change has occurred. This change could result from an increase in level of service, the removal of a service, or the closure of a site. Because the indirect utility is a function of the site attributes, a change in one of the attributes will result in changes in welfare for those who visit the site. It is the estimated parameters of the indirect utility function that are used to calculate the welfare measures.

Hanneman (1982, 1984) demonstrated that the marginal utility of income, μ, is equivalent to the coefficient of the travel cost parameter estimated in the random utility model. Consider the indirect utility function

$$V_i = \beta(M - TC_i) + \alpha(q) \qquad (3.10)$$

where α and β are estimated parameters, M is household income, TC_i is the travel cost to site i, and q is a vector of site attributes. The marginal utility of income is derived by partially differentiating the indirect utility function with respect to M, which ultimately is the coefficient on travel cost:

$$\partial V_i / \partial M = \mu \qquad (3.11)$$

It is assumed that the marginal utility of income is constant across individuals and households. Although restrictive, this assumption should not bias the results, given that

expenditures for camping are not a large proportion of total household expenditures. In addition, some differences in the marginal utility of income between different groups of individuals can be captured in interaction terms created with the cost variable.

3.3 Discrete Choice Data

Two types of data were collected for this study. The first type of data describes the actual household decisions and is termed *revealed preference data*; these data are collected in the form of a camping trip log. The second type of data captures each individual partner's stated preferences and is termed *stated preference data*; these are collected in a choice experiment format. Both the trip log and the choice experiment data are discrete choice data.

3.3.1 Revealed Preference Method

To elucidate preference structures, the revealed preference approach examines the behavioural trail of the actual choices made by the household. For example, by examining the choices made by campers in Saskatchewan, the preferred site attributes can be determined. The household chooses one site from many sites in its choice set, C_n, with the probability of choosing that site being equal to the probability that their expected utility associated with site i is greater than or equal to the level of utility attained by choosing any alternative site in the choice set.

As noted earlier the conditional indirect utility function is a function of the site attributes and household characteristics (see equation 3.3). The estimation of a RUM model can yield information about which site characteristics influence site choices and which socioeconomic factors play the most significant role in the decision-making process.

The revealed preference method, however, is not always conducive to observing the underlying behaviour of interest (Adamowicz et al. 1994a). That is, it is difficult at times in the revealed preference approach to uncover which attributes of the preferred sites were important to the visitors and why other sites were not preferred. The difficulty

arises because this method suffers from collinearity among the attributes, and there may be homogeneity among the responses. This means that the importance of a particular attribute cannot always be untangled from all the other attributes. This is troublesome, because the identification of preferences for a particular attribute in isolation is often required in welfare and policy analysis.

A second problem is that this method cannot be used to examine new goods or new attributes for existing goods. That is, it is difficult to examine potential changes in the use of a campground site should a new attribute be considered for development or should the environmental quality of the entire region decline in such a way that it negatively affects the attributes of the site.

3.3.2 Stated Preference Method

An alternative method employed to investigate recreational choices is the stated preference approach, and in this study the stated choice method (SCM) is used. This method has evolved from the conjoint analysis method used in marketing research (Hensher and Louviere 1983). The SCM approach is founded on behavioural theories that include Lancastarian consumer theory (Lancaster 1966), decision-making theory[14] (Hammond 1955; Slovic and Lichtenstein 1971; Anderson 1970, 1981, 1982), and random utility theory (Thurstone 1927; McFadden 1974; Manski 1977; Yellot 1977). This flexible approach is used to collect preference data, generally as choices and rankings, full and partial, from subjects in hypothetical settings. This method has the respondent compare several alternatives, with each alternative consisting of varying levels of attributes. These attributes are determined by decomposing a composite good into its constituent attributes. The choice set of alternatives, which are bundles of attributes, are commonly generated using an experimental design technique with the

[14] This work comes from the psychological literature on information processing and decision making.

objective of minimizing the number of combinations that must be presented to respondents to enable statistical identification of the underlying preference function. Given a set of attributes, each with several levels, design methods can be used to structure choice sets. Respondents trade off the level of one attribute against the other attributes, implicitly weighing and valuing the various attributes and their relative levels. These trade-offs are the basis of the estimation of preferences for the alternatives. When the multiple attributes are varied simultaneously, marginal rates of substitution among attributes can be estimated.

The stated preference approach directly obtains an individual's preference for a good; in this case, a recreational site. This method is often used for a good for which there is not an adequate behavioural trail, or the method may be used in conjunction with revealed preference techniques (Adamowicz, Louviere, and Williams 1994). The survey can take many forms and uses constructed hypothetical situations. The stated preference method is often criticized because of the hypothetical nature of the questions and the fact that the actual behaviour is not observed. However, the researchers who employ stated preference methods felt that the benefits outweigh these concerns (Adamowicz et al. 1994a; Adamowicz et al. 1994b; Adamowicz et al. 1995).

The stated preference approach has several advantages. A particularly useful aspect in the stated choice experimental design is the potential to untangle the preferences for each site attribute. A second advantage is that the preference structures for each respondent can be captured. Thus, even if the decision under study is a bargained household decision, there is the potential to reveal the individual preferences of each partner from household preferences by comparing the actual household decision with the individual preferences of each partner captured in the stated preference questions.

CHAPTER 4

DATA COLLECTION AND SURVEY DESIGN

4.1 Introduction

In this chapter the survey development and data collection process are described. In section 4.2 the development of the data collection instruments is described, as well as how each type of data was handled for analysis. In section 4.3 the data collection process and survey sample are outlined.

4.2 Data Collection Instruments

Two data collection tools were used in the study: in-person interviews, which were used primarily as a screening tool, and a mail-out survey. The survey was designed to collect data that allow for the examination of factors influencing household's recreation decisions and of trade-offs that decision makers are willing to make among different attributes of camping locations.

The survey was divided into five sections. The first section asked individuals questions about their previous camping experiences and their attitudes toward camping. This section served as a warm-up to start the respondents thinking about camping and the role that it plays in their lives. The second section consisted of a choice experiment that examined the trade-offs that individuals made among different attributes associated with hypothetical camping sites. The third section asked questions about the demographic attributes of the respondents; specifically, it collected information on age, sex, education level, employment level, and information about both camping and location of residence as a child. The fourth section was composed of questions about division of household responsibilities between the two partners, ideological beliefs about families and roles in the family, financial management, individual contributions to household income, and the level of household income. The third and fourth sections provided the data used in the power structure analysis. The final section of the survey was the trip log that asked the respondents to provide detailed information about their camping and noncamping

holidays taken in the previous year. The next three sections of this chapter outline the survey components instrumental in the analysis, their function in the analysis, and how the data were coded.

4.2.1 Revealed Preference Component of Survey

From each household two types of trip logs were requested. The first asked that holidays other than camping trips taken in the past year be recorded, and the second asked that the camping trips taken be recorded. Each respondent from a household was asked to complete either one or the other of the trip logs. Often the trip log for noncamping holidays was not completed, and as a result an analysis of the possible trade-offs among different types of holiday was not conducted.[15] For the camping trip log, the respondents were asked to supply the approximate date of the trip, the duration, the location, who chose the location, and the size of the camping party.

According to the trip logs, these respondents visited over 350 camping sites in Saskatchewan, Alberta, and British Columbia. The geographical locations of the camping sites were identified, and from this information 15 camping regions were created based on geographical proximity to each other. Appendix A provides an illustration of these regions, and Table 6.2 lists the regions and trips taken to each region. Using tourist information (Alberta Hotel Association 1998; Tourism Saskatchewan 1999) the attributes for each camping site were identified. These sites were further categorized by facility levels. Two facility levels were used. The high-level facility was equivalent to the definition of *fully* or *well-serviced* in the stated choice experiment, and a low-level facility was equivalent to moderate or minimal. Definitions of the attributes are outlined in Appendix B. In the final choice set, some regions had both levels of facilities, while others had only one. Given that there are 15 camping regions and the possibility of more

[15] One possible explanation for this low completion rate of the noncamping trip log is that the emphasis of the survey and in-person interview was on camping, and the relevance of the noncamping trips may not be apparent.

than one facility level in each region, the total choice set was 25. Once categorized into geographical regions and facility levels, other attributes were identified, and a level was chosen for each of the attributes based on the majority of the sites in the category (see Table 4.1 and Appendix C).

Table 4.1: Attributes and Levels Used in Revealed Preference Models

Attributes	Levels	Description of discrete levels[a]
Distance from residence		Continuous variable
Fees[16]		Continuous variable
Facilities	Level 1	Minimal to moderate facilities
	Level 2	Well serviced to fully serviced facilities
Firewood	Level 1	$5 per bundle
	Level 2	Free
Trails	Level 1	Yes
	Level 2	No
ATV	Level 1	Yes
	Level 2	No
Beach	Level 1	Yes
	Level 2	No
Fishing	Level 1	Yes
	Level 2	No
Road quality	Level 1	Fully paved to campsite
	Level 2	Portion of road is gravel to campsite

Note: [a]For detailed description of the variables see Appendix B.

4.2.2 Stated Choice Component of the Survey

Choice sets. One of the most difficult aspects of designing a choice experiment is determining the set of site attributes which will represent a realistic set of factors that influence the recreational decision, while at the same time accurately representing the variations that exist in a real situation (Adamowicz et al. 1994). It is important to ensure

[16] Fees represent the daily fees paid to the campground management.

that the choice tasks are not too difficult or complex and that they are not too far from reality (Carson et al. 1994).

The characteristics that influence a family's decision to camp at one location over another were identified from previous research efforts, including those of McFarlane, Fisher, and Boxall (1999). The relevant levels of these characteristics were also identified. These attributes were compared with the tourism literature from Saskatchewan and Alberta (Alberta Hotel Association 1998; Tourism Saskatchewan 1999). The final choice set included two different camping alternatives with the third alternative to stay at home. The stay at home alternative did not include any attributes and is a realistic alternative. This alternative allowed the respondents to "choose not to choose" if the attributes available to them in the two other choice alternatives were not desirable. The inclusion of this alternative makes the choice decision more realistic and provides for a better measure of the significance of the attributes included in the choice design (Carson et al. 1994).

Attributes and levels. The number of attributes and their respective levels were limited because the difficulty of the task and the number of respondents required to conduct statistical analysis increases as the number of attributes and levels are increased. The attributes included in the final design were distance (a cost variable was calculated based on distance to the site), type of facilities, fees, whether or not firewood was free, the availability of activities, and road quality. Each attribute is presented in discrete levels that provide a way of measuring how changes in these levels influence a household's decision. The attributes and their respective levels are described in Table 4.2.[17]

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[17] One small difficulty arose for a few respondents in completing this section. These respondents noted that if they were at the site for a week, then they would want a different level of service than if they were there for a weekend. The focus of this research is the family camping holiday (3 days or greater). Unfortunately, it was not clearly stipulated in the directions whether the individuals were to consider this as a camping holiday and not a weekend camping trip. For the majority of the respondents this point was not a concern, but in future research a more clearly delineated good would eliminate this confusion.

Table 4.2: Attributes and Levels Used in Choice Experiment

Attributes	Levels	Description of discrete levels[a]
Distance	Level 1	100 km
	Level 2	300 km
	Level 3	500 km
	Level 4	700 km
Facilities	Level 1	Minimal facilities
	Level 2	Moderate facilities
	Level 3	Well serviced facilities
	Level 4	Fully serviced facilities
Fees	Level 1	$7
	Level 2	$14
	Level 3	$21
	Level 4	$28
Firewood	Level 1	$5 per bundle
	Level 2	Free
Trails	Level 1	Yes
	Level 2	No
ATV	Level 1	Yes
	Level 2	No
Beach	Level 1	Yes
	Level 2	No
Fishing	Level 1	Yes
	Level 2	No
Road quality	Level 1	Fully paved to campsite
	Level 2	Last 25 km gravel

Note: [a]For detailed description of the variables see Appendix B.

Statistical design. The choice experiment uses a statistical design that combines the attributes and their respective levels in such a way that the attributes are orthogonal to each other; that is, there is no correlation between the attributes. The statistical design is based on two alternatives since the stay-at-home alternative is consistent across all questions. Each of the two alternatives had nine attributes: three attributes with four levels and six attributes with two levels. The entire factorial sample consists of $(3^4 \times 6^2) \times (3^4 \times 6^2) \times 2$. Selecting an orthogonal main effects design from the larger factorial can reduce the required sample size. In this design the smallest main effects design consisted of 32 alternatives that were blocked into four versions with eight tasks in each. All the

attributes are orthogonal. However, the blocking variable is not completely orthogonal but is optimized (Hiltz 1999).

An equal number of each of the four versions of the survey was mailed out.[18] Each household received two different versions of the choice experiment to help mitigate collusion in the answering process. The returned surveys included a fairly equal proportion of each of the four versions (see Table 4.3).

Table 4.3: Proportion of Choice Experiments

Version	Proportion of total	Number returned
1	26.5	206
2	24.5	190
3	24.5	190
4	24.5	191
	100	777

All of the site attribute data for stated and revealed preference models were effects coded[19] for statistical analysis except fees and cost, which were combined, creating a continuous monetary variable. The travel cost variable was constructed from the distance and household income information corresponding to the respondent. The travel cost variable consists of a cost for the distance travelled (a mileage cost times the distance from home to the site) and a time cost (1/3 the wage per hour times the number of hours travelled). Fees for the campground were then added to the travel cost to create a total cost variable for the analysis.

[18] Section 4.3 discusses interview and mail-out procedures.

[19] For a description and discussion of effects coding, refer to Louviere (1988) and Adamowicz et al. (1994a).

4.2.3 Demographic and Attitudinal Components

The demographic and attitudinal data were collected in four sections of the survey. The first section explored the individual's camping experience and attitude towards camping. The purpose of this set of questions was to determine how much influence an individual's past experience and attitudes have in the household holiday decision. The questions on camping experience used a 5-point Likert scale, in which 1 equals *strong agreement* to the statement and 5 equals *strong disagreement*, to measure the attitudes and preferences for camping.

The second section requested personal demographic information including sex, in which province the respondent grew up, whether they had camped as a child, age, level of education, and employment. These data were used to construct several of the variables required for the determination of the influence of household and individual factors on household recreational decisions.

The third section collected information on perceptions of how tasks are divided up in the participants' households. Information was also collected on their attitudes to their and their spouses' role in the household. In order to obtain information on the division of responsibility for household tasks and decisions, the respondents were asked to indicate whether they or their spouse were primarily responsible for the particular task or whether responsibility was shared. For the ideological statements, the respondents were asked to indicate whether they agreed or disagreed with the statements using the 5-point Likert scale. These responses were used in an attempt to categorize the respondents' beliefs about their and their respective spouses' roles in the household.

The division of labour and ideology variables were coded, according to the gender of the respondent, into three types of households based on how questions about activities or ideologies were answered. The three types of households are termed *traditional*, *egalitarian*, and *nontraditional*. A statement such as "My role should be the primary breadwinner of the household" for men who strongly agreed would be coded to represent

a more traditional household, while strongly disagreeing was taken to be a more nontraditional household. The statement would be coded in the opposite direction for female respondents. Nontraditional responses were coded 1, more egalitarian responses were coded 3, and traditional households were coded 5.

New variables then were created by summing the responses from both the male and the female of the same household. These new variables described how traditional or nontraditional the households were. When summing the respondents' codes, if the household was a traditional household and both respondents perceived the household in the same way, the assigned score was 10. If the partners perceived their relationship to be more egalitarian, the assigned score was 6; while for a nontraditional household the score would be 2. If partners did not agree, the scores would range between 2 and 10. However, this was not a frequent occurrence. The aggregated household variables are used in the statistical analysis.

In addition, alternative variable formulations were examined. Factor analysis and reliability tests were conducted to determine whether indices could be created by combining responses to some of the ideological and division of labour statements that would categorize the household as nontraditional, egalitarian, or traditional. These results indicated that the questions could be combined to create one composite index. However, with a composite index, it is difficult to determine whether ideology or household tasks had more influence on the household preference structures and weighting. Unfortunately, smaller groupings of the questions did not have sufficiently significant reliability tests to warrant the creation of indices. As a result, indices were not employed; and each question from the division of labour, ideology, and financial management sections of the survey was examined to determine whether it could provide insight into the weighting of the preference structures.

The last section focussed on who managed the household finances, details regarding each partner's contribution to the household income, and the total level of

household income. The categories used in the survey were based on previous work conducted by Pahl (1995) and Dobblesteen (1996). These were recoded to identify households as having a shared, female, or male-dominant financial management system. All these data are used in exploring the power dimensions in the household.

4.2.4 Pretesting

Once the initial set of attributes was identified for the choice experiment, discussions were held with Saskatchewan Environment Resource Management personnel. Comments from these discussions were incorporated into the final set of attributes. In addition, more than 20 interviews were conducted with individuals who had camped several times during the past few years. During these interviews, campers were asked whether there were any other attributes that better described the camping sites they had visited recently. They were also asked to comment on the length and content of the survey. After these comments were incorporated into the survey, on-site pilot interviews were conducted. During these pilot interviews the respondents were asked to complete the entire survey on site. These pretests and pilot interviews helped determine the willingness of people to be interviewed, to answer all of the sections of the survey, and to determine the length of time it took to complete the survey.

4.3 Survey Sample

Data collection occurred in two stages. The first stage took place during the summer of 1999, at which time in-person interviews were conducted with families who were camping in the Meadow Lake Provincial Campgrounds in Northwest Saskatchewan.[20] The sample is purposive; that is, interviews were conducted on-site at the Meadow Lake Provincial Park campgrounds with the interviewers approaching all

[20] This park is on the southern fringe of the boreal forest and offers 20 different campgrounds, with each campground offering a different set of services to the visitors ranging from "no trace" to full-service camping (Tourism Saskatchewan 1999). The fact that there is a range of camping services in this provincial park allowed the researcher access to campers who have different types of preferences for a range of camping facilities and activities.

camping sites that were occupied by family groupings. Because the study focuses on household decision making, only potential family groupings were approached for an initial short interview. The interview was used to screen respondents to determine whether the camping group was actually a household. This was done by asking them basic questions about their camping experience and a few demographic facts. If the group was a family, the household partners were asked if they would be willing to participate in the second stage of the study, a mail survey. A copy of the interview guide and one version of the survey are included in Appendix D.

For households to participate in the second part of the study, the partners had to agree that each would complete their survey independently.[21] The completion of the surveys by each partner is a critical component of the data collection, because these surveys enable a comparison between the individual preferences of each partner to the actual household decisions.

The mail-out procedure involved three steps (Dillman 1978). Approximately a week after the interview, the set of surveys with a covering letter explaining the project was mailed out to the address obtained on the consent form. If the surveys were not returned within two to three weeks of the first mail out, a reminder post card was sent. If there was no response within four weeks of the first mail-out, a second set of surveys with a second covering letter was sent. To encourage households to return their surveys, a draw was conducted awarding a gift certificate and camping passes for Meadow Lake Provincial Park to two households.

In total 543 in-person interviews were conducted, with only 10 individuals refusing to take part in the interview process (see Table 4.4). Of the 543 interviews, 24 participants refused to take part in the mail survey, and 26 interviews did not meet the

[21] An additional reason to collect responses from both partners is that there is growing literature on household decision making that demonstrates that there are often large discrepancies in their responses, so that relying on one partner could result in biased results (Blumberg and Coleman 1989).

sampling criteria. Interviewees did not meet the sampling criteria for the mail-out survey if they resided outside of Canada or if the household was a single-headed household. In the end 493 households received the mail-out surveys. The response rate for the mail-out survey was 80.1%; 395 households returned their surveys. Some 777 of the possible 790 surveys (two surveys per household) were useable. There are several reasons for having less than a full sample. First, both surveys were not always returned or completed adequately. Second, in a few instances it appeared that the same individual had completed both surveys. These surveys were identified as having the same handwriting on both surveys[22] and were excluded from the gender and bargaining analysis. All the completed surveys were useable for the stated preference analysis. However, for the bargaining analysis, the sample was smaller at 356 households.

Table 4.4: Response Rates for In-Person Interviews and Mail-Out Surveys

	Campsites contacted	Refused interview	Refused survey/ did not return	Not part of sample	Household contacted	Household returned
In-person interviews	553	10	24	26	493	
Mail-out surveys	493		98			395
Response rate						80.1%
	Households	**Household both surveys useable**	**Total useable surveys**	**Male**	**Female**	
Returned surveys	395	356	777	390	387	
Response rate		72.2%	78.8%			

[22] When asking both partners to complete their surveys independently, there is always a concern about whether both individuals will actually take the time to complete the survey or whether one person will complete both surveys. One check for this is to have the response for at least one section of the questionnaire to be handwritten. This allows the analyst a system for validation. In this survey there were two trip logs to be completed, one for camping and one for other holidays. This provided the handwriting sample.

CHAPTER 5

DESCRIPTIVE STATISTICS AND PRELIMINARY ANALYSIS OF POWER VARIABLES

5.1 Introduction

Presented in this chapter are the descriptive statistics, as well as a bivariate analysis of the variables outlined the theory of gender balance (Blumberg and Coleman 1989) and the couple's perception of how responsibility is divided between them for four household decisions. This method of analysis is commonly employed in sociological literature. The bivariate analysis is presented for the purpose of comparison to the results obtained in the multivariate bargaining analysis reported in Chapter 6.

5.2 Descriptive Statistics

Before proceeding to the analysis of the power variables, it is of interest to examine some basic demographic characteristics of the individuals in our sample. The distribution of home provinces of the respondents in the sample (see Table 5.1) differs somewhat from the visitation figures for the Meadow Lake Provincial Park for the summer of 1999. The sample was purposive and included families camping mid-week in Meadow Lake Provincial Park. The sample includes only families from Canada, and the majority of the respondents are from Alberta and Saskatchewan. The households in the "other" category are in British Columbia, Manitoba, Ontario, or the Northwest Territories. It appears that our sample relies more heavily on families from Alberta and has undersampled families from Saskatchewan. The discrepancy may exist due to the fact that our sample includes only weekday campers, while the Meadow Lake Provincial Park visitation statistics include all campers. Because of this discrepancy, it is difficult to ascertain whether our sample is typical for long-term stays. Weekend trips were not included in the sample because the good being examined is a family vacation, which is assumed to last longer than three days, and therefore the family should be on site at some point during the week.

Table 5.1: Provinces in Which Meadow Lake Park Visitors Reside

Residences	Survey (n=395)	Park visitation summer 1999[a]
Alberta	64.9	54.4
Saskatchewan	30.8	42.5
Other Provinces	1.4	1.8
Out of Canada	0	0.7
Unknown	2.8	0.2
	100	99.6

Source: [a]Saskatchewan Environment and Resource Management 1999.

Note: Expressed in percentages.

The basic descriptive statistics for the sampled households and individual sociodemographic variables of the respondents are presented in Appendix E. The households range in size from two adults to a family of eight. To meet the sampling criteria of study, the households contain at least two adults. The average household size was 3.7, with an average of 1.6 children. The average income for the responding households is $67,754 per annum, which is slightly higher than the median income of $65,000. However, these income data were collected in categories, resulting in two problems. First, the amount is only a rough estimate of the household's income; and second, since the highest category is greater than $100,000, this truncation results in an underestimation of the average.

The average age for both men and women respondents is slightly over 40, with the men being slightly older than the women. The education levels for women range from no school at all to postgraduate education (approximately 20 years of schooling). The education for men ranges from grade school to postgraduate work. The average level of education for the women and the men is slightly higher than 13 years, indicating that the average respondent has completed at least high school plus approximately one more year

of education. The respondents were experienced campers, with the men having slightly more camping experience than women, 21.5 and 20.4 years, respectively.

5.3 Preliminary Analysis

One aspect of power in a household has been associated with who has control over a decision-making process (Blumberg and Coleman 1989; Blumenstein and Schwartz 1991). Respondents were asked for their perception of how decision-making responsibility is distributed between the couple (see Table 5.2). Data were collected for four different types of decisions. Two of the questions related to subdecisions made when planning a holiday: location and timing. Two purchasing decisions were included: the purchase of a large family item, a new vehicle; and the purchase of a speciality item, new camping equipment. Both of the partners rated the four questions based on who they thought had primary responsibility for the decision. Responses were coded 1 if it was the wife's responsibility, 3 if it was shared, and 5 if it was the husband's responsibility. Responses from both partners were summed, with the ratings ranging from 2, indicating a wife-dominant decision, to 10 for a husband-dominant decision. A rating of 6 suggests that the decision is shared.[23]

Table 5.2: Mean Household Rating of Decision-Making Statements

Decision	Mean (n=369)
Holiday location (n=351)	6.04 (0.67)
Holiday timing (n=301)	6.22 (1.41)
New vehicle (n=264)	7.35 (1.73)
New camping equipment (n=279)	6.50 (1.46)

Note: - Standard deviation in parenthesis.
- Coding: 2 is wife-dominant, 6 is shared, 10 is husband-dominant.

[23] A rating of 6 could also be achieved if person 1 chooses 1 and the other person chooses 5. However, the discordance between two responses was seldom that large and on average was 2.

Similar to these results, earlier travel and tourism research indicated that the household members perceive the holiday decisions to be a shared decision (Davis 1976; Jenkins 1978; Filiatrault and Ritchie 1980; Fodness 1991). Both purchasing decisions tend to lean more to being a husband-dominant decision. This also accords with earlier research which stated that the final decision about large expenditures, such as a new vehicle, tended to be more husband-dominated (Bonfield 1978).

It is difficult to determine from these averages how many partners agreed on the decision-making responsibility. Table 5.3 provides some information regarding tendencies to agree or disagree in four household decision areas. The results indicate that obtaining agreement on who is primarily responsible for these types of decisions differs depending on the type of decision and becomes more difficult as the magnitude of the expenditure increases. All of these decisions were predominantly shared. Clearly these households consider the family holiday to be a joint decision, supporting the theoretical framework posited in the previous chapter in which cooperative bargaining models are the appropriate framework to examine the final allocation of shared household goods.[24] For the more periodic and substantial expenditures, such as the purchase of a new vehicle, these results indicate that, though predominantly shared, the husband is more likely to make the final decision. However, this result may not hold for other large expenditures, such as remodelling the kitchen. The type as well as the magnitude of the decision will affect who has the most influence on the final decision.

[24] In the trip log a question was asked about who decided the location of the trip. The majority of the trip locations, 65%, were decided by both partners. (See Appendix F.)

Table 5.3: Proportion of Households in Which Both Partners Agreed Upon the Decision-Making Framework

Decision	Proportion of total sample in agreement	Wife-dominant decision	Shared decision	Husband-dominant decision
Holiday location (n=351)	95.12	1	93.5	1
Holiday timing (n=301)	81.57	2.7	73.2	5.7
New vehicle (n=264)	71.54	0.3	48.0	23.3
New camping equipment (n=279)	75.61	2.2	66.7	6.8

Note: Expressed in percentages.

The next sections examine the relationships between the perceived delineation of decision-making responsibilities and the sociodemographic variables, division of tasks, and ideological variables that have been identified in the literature to be potential explanators of household decision-making power. Each section begins with a brief description of one variable, followed by analysis of the variable for each of the four questions that dealt with the division of decision-making responsibility in the household. The mean of the rating for each question is calculated across different categorizations of the variable under study. In order to interpret whether these variables have a significant relationship with the decision-making questions, a comparison of means was conducted.

5.3.1 Income

The level of income that individuals contribute to the household can affect their relative influence on household decisions (Blumberg and Coleman 1989; Blumenstein and Schwartz 1991). Blumberg and Coleman postulated that both the level of absolute income of the woman and the earning ratio of the wife to her husband can have an influence on the wife's overall economic power. For the purpose of comparison, the

absolute level of income has been categorized into three levels and the frequency with which the husband or wife falls into the categories is presented in Table 5.4. This comparison illustrates that men, for the most part, have a higher level of income and as a result contribute more financially to the household.

Table 5.4: Frequency of Men and Women in the Absolute Level of Income Categories

Income level	Women (n=262)	Men (n=317)
0-35000	81.3	24.0
35001-75000	17.6	59.0
75001 +	1.1	17.0
	100	100

Note: Expressed in percentages.

Blumberg and Coleman (1989) suggested that it is the absolute income level of the wife that will be a factor that shapes the power dynamics in a household. Unfortunately, there are so few women in the higher income category in this sample that an analysis of the four questions across the women's absolute income level is not appropriate. However, an examination of whether the husband's absolute level of income influences the decision-making structure in the household was conducted. To examine the influence that the absolute level of income that an individual contributes has on the four household decisions, the means are calculated across four categories of the husband's absolute income. The absolute level of the husband's income is a significant variable only for the decision of timing of the vacation (see Table 5.5). The result is particularly strong between households in which the husband has a mid to high level of income. This result is consistent with the notion that as the level of the husband's income increases, his available vacation time has a stronger influence on the timing of the family vacation.

Table 5.5: Mean Household Rating of Decision-Making Statements Across Categories of Husband's Absolute Level of Income

Decision	Low level of income	Mid level of income	High level of income	Anova	
				F-stat	Sig level
Holiday location	6.00	6.02	6.19	1.278	.280
	(.65)	(.72)	(.80)		
Holiday timing	6.16	6.14[a]	6.74[a]	3.956	.020
	(1.49)	(1.38)	(1.47)		
New vehicle	7.08	7.39	7.52	1.235	.292
	(1.80)	(1.71)	(1.69)		
New camping equipment	6.24	6.58	6.67	1.898	.152
	(1.57)	(1.42)	(1.29)		

Note: - Standard deviation is in parenthesis.
- Coding: 2 is wife-dominant, 6 is shared, 10 is husband-dominant.
- One-way analysis of variance and Scheffe's multiple range tests employed to compare means. All tests conducted at an alpha level of 0.05.
[a] Means with the same superscript are significantly different from each other.

The related variable, relative contribution of income, has also been identified as an important factor in an individual's ability to influence a decision. The frequency of the relative income contributions of men and women is presented in Table 5.6. While the majority of the women contribute income to the households, the men contribute a substantially higher relative amount.

Table 5.6: Proportion of Individuals in Each Relative Income Category by Gender

Income category	Female	Male
0%	14	0.3
1-10%	15.1	1.7
11-25%	16.1	3.1
26-50%	40.7	16.4
51-75%	9.5	32.9
76-90%	2.5	20.6
91-100%	2.1	25
	100	100

Note: Expressed in percentages.

To examine the influence of the relative income that an individual contributes has on the four household decisions, means are calculated across four categories of the woman's relative income contribution. The choice about where to go on vacation does not vary across the different levels of relative income, and the responsibility for the decision is shared (see Table 5.7). Decisions about the timing of the vacation and the large expenditures are influenced by the level of relative income of the wife. In the households in which the woman makes 25% or more of the household income, she has substantially more input into the timing of the vacation, to the point at which this becomes a wife-dominated decision in households in which she contributes 50% or more of the income. Wives who earn more than half the household income also have more influence in the purchasing of a new vehicle, bringing the responsibility for the final decision closer to a shared decision. These results suggest that women who contribute relatively more income to the household than their husbands have more influence on this large expenditure than women who contribute comparatively less income to the household. Both the absolute and the relative level of income play a role in the amount of influence each partner may have on some decisions made in the household, and the level of influence varies depending on the type of decision to be made.

Table 5.7: Mean Household Rating of Decision-Making Statements Across Categories of Wives' Relative Income

Decision	0-25%	26-50%	51-75%	76-100%	Anova F-stat	Anova Sig level
Holiday location	6.15 (0.73)	5.98 (0.59)	6 (1.02)	6 (0)	1.815	.144
Holiday timing	6.62[a] (1.55)	6.04[a] (1.24)	5.92 (1.50)	5.2 (1.79)	6.07	.000
New vehicle	7.78[a,b] (1.69)	7.2[a] (1.74)	6.5[b] (1.22)	6.4 (1.67)	5.932	.001
New camping equipment	6.58 (1.40)	6.45 (1.53)	6.5 (1.22)	6.8 (1.10)	.304	.822

Note: - Standard deviation is in parenthesis.
- Coding: 2 is wife-dominant, 6 is shared, 10 is husband-dominant.
- One-way analysis of variance and Scheffe's multiple range tests employed to compare means. All tests conducted at an alpha level of 0.05.
[a,b] Means with the same superscript are significantly different from each other.
- The sample size is smaller in this table because not all respondents completed the relative income question.

5.3.2 Employment

A related sociodemographic variable is the pattern of employment within the household. In this sample women and men have substantially different employment patterns (see Table 5.8). The majority of men are employed full time, while less than half of the women are employed full time.

Rather than examine individual employment patterns as a way of understanding the potential impacts of employment levels on the decision-making structure, it is more important to examine the decisions across the different types of household employment arrangements that exist in households. Only households in which at least one partner was working full time, comprising 88.1% of the entire sample, are included in the analysis. These households are either categorized as breadwinner, co-provider, dual earners or nontraditional (see Table 5.9). In the breadwinner households the husband works full time or seasonally, while his partner is not employed. In the co-provider category the

Table 5.8: Employment Level of Respondents by Gender

Employment level	Female (n=383)	Male (n=388)
Stay at home	20.4	0.3
Part time	27.7	0.7
Seasonal	2.9	2.1
Full time	41.1	87.7
Student	1.1	0.3
Unemployed	1.8	0
Retired	4.6	8.2
Other	0.7	0.7
	100	100

Note: Expressed in percentages.

husband holds a full-time position and his wife has a part-time or seasonal position. In the dual earner households, both partners are employed full time. In the nontraditional households the women have full-time jobs and their husbands work part time, stay at home, or are retired. The remainder of the sample is predominantly made up of retired couples, with a few couples who are working part time, attending school, or staying at home. These employment patterns are reflective of the present trends for families across Canada in which an increasing number of women are entering paid employment (Cheal 1993).

Table 5.9: Employment Patterns for Households in Which at Least One Partner Is Employed Full Time

Employment pattern	Frequency	Proportion
Breadwinner	92	26.6
Co-provider	105	30.3
Dual earner households	137	39.6
Non-traditional	12	3.5
	346	100

The means for the ratings of the responsibility for different decisions across the household employment patterns indicate a trend for some decisions to be more husband-dominant in the breadwinner and co-provider households, while in the nontraditional structure, decisions tended to be more egalitarian (see Table 5.10). The question that exhibits a range on either side of the shared rating is the timing of the holiday. This result may reflect the fact that in the breadwinner household, the holiday would have to be planned around the husband's work schedule, while in the nontraditional arrangement it is the wife's work schedule that would need to be considered. The holiday location is a shared decision across all household types. In contrast, choosing a new vehicle is a more male-dominated decision even in households which are more egalitarian in other respects.

Table 5.10: Mean Household Rating of Decision-Making Statements Across Household Employment Patterns

Decision	Breadwinner (n=92)	Co-provider (n=104)	Dual earner (n=137)	Non-traditional (n=7)	Anova	
					F-stat	Sig level
Holiday location	6.17 (0.72)	6.02 (0.71)	6.0 (0.60)	5.56 (0.33)	2.621	.051
Holiday timing	6.71[a,b] (1.55)	6.46[c,d] (1.53)	5.93[a,c] (1.10)	5.11[b,d] (1.45)	8.34	.000
New vehicle	7.80 (1.74)	7.33 (1.69)	7.16 (1.72)	6.67 (1.73)	2.924	.034
New camping equipment	6.49 (1.53)	6.60 (1.39)	6.51 (1.6)	5.78 (0.67)	.834	.476

Note: - Standard deviation is in parenthesis.
- Coding: 2 is wife-dominant, 6 is shared, 10 is husband-dominant.
- One-way analysis of variance and Scheffe's multiple range tests employed to compare means. All tests conducted at an alpha level of 0.05.
[a,b,c,d] Means with the same superscript are significantly different from each other.
- The sample size is smaller in this table because includes household in which at least one partner is employed full time.

Some of the differences regarding who is responsible for making decisions are significant across the different employment strategies (see Table 5.10). The means for the decision regarding the timing of the holiday are statistically significant across several different comparisons. Employment patterns should be considered an important factor when analyzing the influence that partners have on decisions made in the household.

5.3.3 Financial Management System

Respondents were asked to indicate who was responsible for managing household finances. These responses are categorized into four basic groups. In the first, the household income is pooled and both members are responsible for the management of finances. In the second and third categories, income is essentially pooled, with the responsibility for managing the finances falling on either the husband or the wife. In addition, each partner has access to a small amount of personal spending money for his or her own use. In the final category, income is not shared between the partners. In most instances it is the expenditures that are divided, and each partner has his or her own responsibilities.

In a majority of the households, 83.3%, both respondents identified the same financial management strategy.[25] The frequency of the types of systems utilized is outlined in Table 5.11. These results indicate that the majority of the households use a shared management system, with both partners having full access to the total household income.

[25] This analysis includes only the households where there was agreement with respect to the financial management system. No further analysis has been conducted on the households in which the responses do not agree (16.7% of the sample).

Table 5.11: Frequency of the Financial Management Systems

Financial management systems	Frequency	Proportion
Shared	260	79.0
Female-managed	34	10.3
Male-managed	18	5.5
Separate	17	5.2
	329	100

Examination of the financial systems across women's level of employment provides interesting insights (see Table 5.12). Over 80% of the households in which the wife stays at home or works part time/seasonally have a joint financial management system. This is at least 10% lower for the households in which the wife works full time or is retired. In these household types there is a trend toward separate finances and wife-managed systems. Interestingly, the highest proportion of independent financial management occurs in the retired households. This may be a result of the fact that in retired households many of the shared goods, such as a house and vehicle, will be paid for decreasing the impetus for shared finances. These figures certainly support the argument that in households in which women provide a substantial portion of the household income through paid employment, they have more control over finances and expenditures.

Table 5.12: Financial Management Systems by Wives' Level of Employment

Employment level	Stay at home (n=73)	Part-time /seasonal (n=97)	Full-time (n=128)	Retired (n=18)
Joint	82.2	85.6	71.9	72.2
Separate finances	0	2.1	9.4	16.7
Female-managed	8.2	6.2	14.8	11.1
Male-managed	9.6	5.1	3.2	0
	100	100	100	100

Note: Expressed in percentages.

It is not clear from these results whether having responsibility for the finances implies that the individual is responsible just for paying the bills or also has relatively more influence over larger financial expenditures. When examining the mean ratings for the four decisions, it appears that in households in which the wife manages the finances, she has more say in expenditure decisions (see Table 5.13). In households in which the husband manages the finances, women have substantially less input into large expenditures, such as in the purchase of a vehicle. According to Anova tests, these means are significantly different from each other for all four questions. When comparing the means, it is apparent that when the husband is primarily responsible for the management of the household finances, there is a substantially different decision-making power structure than in households in which financial management is female-dominated or more equally shared (see Table 5.13). This suggests that when women play a role in the household financial management, they have more economic agency than in households in which the husband dominates this task.

Table 5.13: Mean Household Rating of Decision-Making Statements Across Financial Management Systems

Decision	Male-managed	Shared	Female-managed	Separate	Anova	
					F-stat	Sig level
Holiday location	6.59[a,b]	6.06[a]	5.88[b]	6.0	4.426	.005
	(1.18)	(0.58)	(0.98)	(0)		
Holiday timing	7.29[a,b,c]	6.21[a]	5.94[b]	5.88[c]	4.287	.006
	(2.11)	(1.33)	(1.35)	(1.15)		
New vehicle	8.35	7.29	7.18	7.75	2.384	.069
	(2.03)	(1.72)	(1.64)	(1.91)		
New camping equipment	7.53[a,b]	6.45[a]	6.18[b]	6.88	3.713	.012
	(2.07)	(1.41)	(1.59)	(1.63)		

Note: - Standard deviation is in parenthesis.
- Coding: 2 is wife-dominant, 6 is shared, 10 is husband-dominant.
- One-way analysis of variance and Scheffe's multiple range tests employed to compare means. All tests conducted at an alpha level of 0.05.
[a,b,c] Means with the same superscript are significantly different from each other.

5.3.4 Division of Household Tasks

Given the trend of women working outside the home, it has been posited that this translates into an increased level of power in household decision making. One area of investigation has been whether this leads to a redistribution of household tasks (Blumenstein and Schwartz 1991). In a traditional marriage with the husband as the breadwinner, the wife stays at home and is often responsible for the housecleaning, laundry, child rearing, and meal preparation. In an egalitarian household in which the wife works full time, these tasks may be divided between the two partners. In this study, data were collected on household cleaning and meal preparation. The responses to these two questions are summed to provide an indication of how a portion of the household tasks are divided and whether the division of these household tasks reflects an egalitarian, traditional, or nontraditional arrangement (see Table 5.14). The results indicate that in the breadwinner and co-provider households the women perform the majority of the household work. In the dual earner arrangement, while women are still primarily responsible for the housework, the men contribute more than in the traditional employment arrangement. In households in which the wife is the primary breadwinner women still, on average, are primarily responsible for these tasks. However, the distribution of these tasks is more equitable. On average, even in households in which the woman is the primary breadwinner, she still has more responsibility than her partner toward these household tasks. Overall, the differences in the means across the employment patterns of the household are significant inasmuch as women are still primarily responsible for performing the household tasks. However, in the dual earner or nontraditional households, these tasks are more likely to be shared than they are in the breadwinner and co-provider households.

Table 5.14: Mean Household Rating of Who is Primarily Responsible for Household Work Across Categories of Employment Patterns

	Bread-winner	Co-provider	Dual earner	Non-traditional	Anova	
					F-stat	Sig level
Rating of household tasks	18.73[b,d] (2.32)	18.12[a,c] (2.99)	16.69[a,b] (3.49)	14.67[c,d] (3.61)	11.338	.0000

Note: - Standard deviation is in parenthesis.
- Coding : Male primarily responsible=4; responsibilities are shared=12; female primarily responsible=20.
- One-way analysis of variance and Scheffe's multiple range tests employed to compare means. All tests conducted at an alpha level of 0.05
[a,b,c,d] Means with the same superscripts are significantly different from each other.

In order to determine whether the division of household tasks is an indicator of different decision-making structures in the household, a comparison of the mean ratings for the four questions was conducted across the three household types. The results reported in Table 15.5 indicate that households with a more egalitarian division of household tasks also have a more egalitarian decision-making structure, with a tendency towards the wife having greater influence in three of the four decisions. Statistically, in a household that has a more egalitarian division of household tasks, the woman has more influence in major household expenditures, as reflected in the difference between egalitarian and traditional households. In a household in which housework follows a more traditional pattern, men have substantially more influence over the final decision in the purchasing of a new vehicle.

This result suggests that division of household tasks may be a good indicator of decision-making power for decision to purchase a new vehicle. The trend of the means does not reflect the expected pattern. It was expected that women would have more influence in a non-traditional arrangement than the others; however, women have the

most influence in the decision-making process for three of the four decisions in an egalitarian household.

Table 5.15: Mean Household Rating of Decision-Making Statements Across Categories of Division of Responsibility for Household Tasks

Decision	Traditional	Egalitarian	Non-traditional	Anova	
				F-stat	Sig level
Holiday location	6.06	5.97	6.0	.501	.66
	(0.74)	(0.25)	(0)		
Holiday timing	6.29	5.94	6.0	1.734	.178
	(1.47)	(1.13)	(0)		
New vehicle	7.50[a]	6.70[a]	7.0	5.861	.003
	(1.78)	(1.40)	(1.33)		
New camping equipment	6.54	6.41	6.0	.676	.509
	(1.55)	(1.03)	(0)		

Note: - Standard deviation is in parenthesis.
- Coding: 2 is wife-dominant, 6 is shared, 10 is husband-dominant.
- One-way analysis of variance and Scheffe's multiple range tests employed to compare means. All tests conducted at an alpha level of 0.05.
[a,b,c] Means with the same superscript are significantly different from each other.
- Non-traditional in this setting indicates that the husband tends to be primarily responsible for the household cleaning and meal preparation.

5.3.5 Size of Family

There has been contradictory evidence about whether the decision-making influence of each individual is affected by whether the household has children or not (Filiatrault and Ritchie 1980; Fodness 1992). In this sample the number of children in a household ranges from no children to six (see Table 5.16).

Table 5.16: Number of Children in the Households

Number of children	Frequency	Proportion
No children	105	28.5
1-2 children	182	49.3
3 or more children	82	22.2
	(n=369)	100.0

In order to determine whether having children in the household affects the level of influence, an examination of the mean ratings across the three categories of household size was conducted (see Table 5.17). The mean ratings are significantly different for the holiday location decision and the decision to purchase a new vehicle. The results do not provide clear insight into the effect that having children has on the wife's influence in the decision-making process (see Table 5.17). In households with only one to two children, women have slightly more than equal responsibility for holiday locations than either women with no children or those with more than three children. This pattern is repeated for both expenditure decisions as well. One explanation for the existence of this pattern is that the distribution of children may be confounded with other variables such as employment patterns and relative income. For example, in households that have children, women begin to have more say in certain decisions, particularly those that affect the children, such as a vacation or a new vehicle.

Table 5.17: Mean Household Rating of Decision-Making Statements Across Categories of Number of Children in the Household

Decision	No children	1-2 children	3 or more children	Anova	
				F-stat	Sig level
Holiday location	6.08	5.97[a]	6.17[a]	2.780	.063
	(.55)	(.68)	(.78)		
Holiday timing	6.17	6.22	6.29	.170	.843
	(1.50)	(1.42)	(1.26)		
New vehicle	7.66[a]	7.2[a]	7.29	2.426	.090
	(1.81)	(1.65)	(1.76)		
New camping equipment	6.55	6.44	6.59	.392	.697
	(1.13)	(1.61)	(1.49)		

Note: - Standard deviation is in parenthesis.
- Coding: 2 is wife-dominant, 6 is shared, 10 is husband-dominant.
- One-way analysis of variance and Scheffe's multiple range tests employed to compare means. All tests conducted at an alpha level of 0.05.
[a,b,c] Means with the same superscript are significantly different from each other.

When the number of children in the household is fewer than three, the women are more likely to be in a dual earner situation, in which they have more influence in several decisions (see Tables 5.10 and 5.18). However, as the number of children increases, the employment pattern is more likely to be co-provider or breadwinner, in which women have less influence.

Table 5.18: Mean Number of Children Across Household Employment Patterns

	Bread-winner (n=82)	Co-provider (n=104)	Dual earners (n=134)	Non-traditional (n=9)	Anova	
					F-stat	Sig level
Mean number of children	2.04 (.78)	2.23[a] (.59)	1.90[a] (.63)	2.00 (.71)	5.037	.002

Note: - Standard deviation is in parenthesis.
- One-way analysis of variance and Scheffe's multiple range tests employed to compare means. All tests conducted at an alpha level of 0.05
[a] Means with the same superscripts are significantly different from each other.

5.3.6 Ideology

Blumenstein and Schwartz (1991) found that an individual's or household's ideology about the role of the husband as the provider was critical in understanding the effect of income on the division of household tasks. This ideology variable is the final variable to be considered in association with the structure of decision-making power. In a traditional household the individuals believe that it is the role of the husband to be breadwinner and the role of the wife to look after the household and to raise the children. This scenario illustrates the "provider" ideology. The "anti-provider" ideology represents households in which the husband is not seen as the primary breadwinner, and this responsibility is shared. Because it is not necessarily the case that the employment patterns will be in line with the household ideology, a separate analysis was conducted. An example of this situation may occur in a household that exhibits the employment

pattern of a traditional household, but in fact holds an anti-provider ideology. An example is where the mother may be at home raising their young children but fully plans to return to her career in a few years. In this sample nearly half the households hold the ideology of the provider, while the others do not (see Table 5.19).

Table 5.19: Frequency of Households Choosing Ideologies

Ideology	Frequency
Provider	172
Anti provider	179
	(n=351)

In the examination of these two ideologies across the four decisions, the anti-provider ideology leans slightly more towards an egalitarian household decision-making structure as compared to the provider ideology (see Table 5.20). The difference between the two ideologies is significant only for the question of vacation timing at the 10% level, and none of the other decisions are significantly different.

5.3.7 Summary

All of the variables examined related to sociodemographics, divisions of task, and ideology variables had a significant relationship with at least one of the four questions examined. The decision most often significantly affected by the power variables was the decision about when to take a holiday, followed by the decision to purchase a new vehicle. Interestingly, the decision of where to go camping, the decision which is the subject of further multivariate analysis, was significantly related only to who managed the finances, number of children in the household, and employment patterns. Clearly, the division of financial management responsibility was closely related to the level of influence that an individual has on the decisions made in the household, as there were significant relationships with all four decisions.

Table 5.20: Mean Household Rating of Decision-Making Statements Across Two Ideological Categories

Decision	Anti- provider	Provider	Anova	
			F-stat	Sig level
Holiday location	5.99	6.09	1.922	.167
	(0.71)	(0.66)		
Holiday timing	6.09	6.38	3.637	.057
	(1.43)	(1.39)		
New vehicle	7.20	7.49	2.471	.117
	(1.71)	(1.72)		
New camping equipment	6.45	6.55	.356	.551
	(1.33)	(1.60)		

Note: - Standard deviation is in parenthesis.
- Coding: 2 is wife-dominant, 6 is shared, 10 is husband-dominant.
- One-way analysis of variance and Scheffe's multiple range tests employed to compare means. All tests conducted at an alpha level of 0.05.

This analysis, though it provides us with some potentially useful insights, has limitations. The first limitation is that the data concerning responsibility for decision making employs a rating scale. Rating scales are fraught with difficulties. The primary difficulty is that individuals can systematically respond high or low, thereby making comparability of the results difficult. The second is that bivariate analysis cannot determine whether one variable has a stronger significant relationship than another. A further difficulty is that this analysis does not address the issue of discordance between the two respondents. It may be that there are some individuals who view their role and their spouses' in the decision-making process differently. These differences are ignored in this analysis. A fourth difficulty is that this type of analysis does not address the way that the partners arrived at the decisions. There is no way to determine what the process of decision making is in these households. In addition, there were no data collected about

the influence that children may have on any of these decisions. Analysis that provides some of the context around the decision-making process would be highly beneficial to our understanding. A final difficulty is that the rating data are based on the partners' perceptions of the decision-making process, which may not reflect the true process.

This assessment provides us with information regarding the significant relationships between power bases and power outcomes, as well as illustrating how responsibility is divided for the four decision areas. However, while these bivariate results provide us with a sense of the general relationships between the two variables, they do not indicate what the direction of influence each power variable has on the four decisions. In addition, each result is independent of the other results; consequently, these comparisons do not capture the relationships between the power variables themselves and how they as a group influence these decisions. The relationship between the decision of where to camp and the power variables will be further examined in the multivariate analysis discussed in section 6.4.2.

CHAPTER 6

EMPIRICAL RESULTS

6.1 Introduction

Estimation was conducted at three conceptual levels: household, individual, and bargained. Section 6.2 describes the analysis of the household decision for a shared household good using the revealed preference data. Section 6.3 describes the analysis of the individual preferences for the same shared household good using the stated preference data. Section 6.4 describes the bargaining analysis, which incorporates the results from the household and individual analysis. In section 6.5 a summary of the results is presented.

6.2 Revealed Preference Results

The traditional approach to valuing environmental or recreational attributes using revealed preference data treats the household as a single maximizing unit. This assumes that the conditional indirect utility function for a site is a function of the site attributes and the characteristics of the household. The objective of such analysis is to determine which site attributes are significant in defining the actual household choice and which household characteristics indirectly influence this decision.

6.2.1 Descriptive Statistics for Trips

The revealed preference modelling is based on the camping trip logs completed by the respondents. While not all households completed the trip logs, at least one data point for each household was collected as they were interviewed on site.[26] This may result in the average number of trips taken last year to be an underestimate, at 4.16 trips. For this study the good being analyzed is the family's camping holiday, and therefore all

[26] This, however, introduces on-site sampling issues discussed later in section 6.2.2.

interviews were conducted on weekdays, primarily mid-week days.[27] To ensure that only camping holidays were included, all trips in the analysis were of three nights or longer. The average length of trip from this subset of the data is 8.1 days (see Table 6.1).

Table 6.1: Descriptive Statistics for Type and Number of Trips Taken Annually
(n=392 Households with 1052 Trips)

Variables	Mean	Maximum	Minimum
Length of trip	8.1 (days)	110	3
Distance	320.5 (km)	1920	1
Number of trips per year	4.16	11	1

In total, these 395 households recorded 1,214 trips, visiting over 350 locations in Alberta, Saskatchewan, and British Columbia. From these trip data a set of 15 camping regions was identified, with 10 of these regions having two levels of facilities (see discussion in Chapter 4). In essence, the sites have been prestratified and have been modelled in a non-nested framework.[28] In Table 6.2 the number of trips to each region/facility level over three days in length is recorded.

6.2.2 Revealed Preference Data Issues

The sample of revealed preference data has two characteristics that pose problems for revealed preference discrete choice modelling: site-based sampling and the size of the choice set. The first difficulty is a function of on-site sampling. There is an overrepresentation of the interview sites in the sample. In this sample almost 60% of the

[27] The assumption is that the site attributes preferred will vary depending on whether it is a weekend camping trip or a camping vacation. That is, a weekend camping trip is a different "good" than a family camping vacation.

[28] This problem could have also been modeled either in a non-nested approach with unstratified data or in a nested approach.

Table 6.2: Number of Trips of Three Days or More by Region

Camping Region	Level of camping facilities	No of trips taken	% of trips taken to each region
Meadow Lake Provincial Park	Low	80	7.6
Meadow Lake Provincial Park	High	532	50.6
Northeast Saskatchewan	Low	7	0.7
Northeast Saskatchewan	High	11	1.0
East Central Saskatchewan	Low	3	0.3
East Central Saskatchewan	High	7	0.7
West Central Saskatchewan	High	20	1.9
Southern Saskatchewan	High	14	1.3
Northern Alberta	Low	8	0.8
Northern Alberta	High	21	2.0
Alberta heartland	Low	19	1.8
Alberta heartland	High	55	5.2
Northeast Alberta heartland	Low	32	3.0
Northeast Alberta heartland	High	42	4.0
Northwest Alberta heartland	Low	7	0.7
Northwest Alberta heartland	High	18	1.7
Southwest section of Northern Alberta heartland	Low	26	2.5
Southwest section of Northern Alberta heartland	High	4	0.4
Southern Alberta	Low	7	0.7
Southern Alberta	High	23	2.2
Northwest Saskatchewan	Low	8	0.8
Northwest Saskatchewan	High	29	2.8
Southern British Columbia	High	33	3.1
Southern Mountain Parks	High	26	2.5
Northern Mountain Parks	High	20	1.9
Total number of trips taken (n=392 households)		1052	100

camping trips are to Meadow Lake Provincial Park, 8% are to less-developed campgrounds, and 51% are to well-serviced sites. This poses problems because the estimated parameters will be biased and inefficient (Ben-Akiva and Lerman 1985). A possible solution is to estimate the model with a j-1 set of alternative specific constants (ASCs), which will yield "asymptotically efficient estimates for choice-based samples of all the parameters except the constants" (Ben-Akiva and Lerman 1985). ASCs have been included in the estimates presented below.

The second problem is that the choice set is large. A common solution is to aggregate sites, but the cost of aggregation is "the loss of estimation accuracy" (Parsons and Needelman 1992; Herriges et al. 1999). Estimation of a model with aggregated sites in a random utility framework assumes that the choice set is based on the grouping of sites that have similar "elemental attributes." For this analysis the sites were aggregated based on two primary attributes: distance and facility level (see Chapter 4 for further discussion). Dealing with the associated estimation issues, however, is beyond the scope of this study.[29]

6.2.3 Estimation Results of the Revealed Preference Model

The primary purpose of this modelling exercise is to understand what campsite attributes attract families to any particular campground based on the decisions these households made during one season. A second purpose of these modelling exercises is to determine which household characteristics influence their camping decisions. This is achieved through the use of an array of interaction terms. The interaction terms represent household level variables rather than individual level variables, including household-level sociodemographic variables and variables derived from the ideological and division of household tasks questions. For definitions and descriptions of the coding of these variables, see Table 6.3. Each of the variables listed in the table was interacted with the site attribute variables, and models with these interaction terms were estimated. The models reported here include only the interaction terms that were significant. In addition, estimates with a full set of ASCs, (i-1), were attempted; however, the model was not estimable. As a result, a subset of ASCs was identified, and these provided the best results.

[29] For an in-depth discussion of the issue refer to Feather (1994), Parsons and Needelman (1992), and Ben-Akiva and Lerman (1985).

Table 6.3 Definition of Variables Used for Interaction Terms in the Revealed Preference Models

Variables	Definition
Socio-demographic	
Retired	= 1 if male retired = 0 otherwise
Education	= 1 if education level of respondent male is greater than female = 0 otherwise
Relative income	= 1 if male relative contribution greater than 75% = 0 otherwise
Children[30]	= 1 if number of children in household is greater than 1 = 0 otherwise
High income	= 1 if household income level is greater than $75,000 = 0 otherwise
Female at home	= 1 if female respondent stays at home full time = 0 otherwise
Age	= 1 if male respondent is older than female respondent = 0 otherwise
Male income	Male absolute level of income
Division of household tasks[31]	
a-final decision over holiday location	Coding ranges from 2-10 - 2 indicates non-traditional household, wife dominated decision -10 indicates traditional household, husband dominated decision
b-....holiday timing	Same as above
c-....new vehicle purchase	Same as above
d-...new camping equipment	Same as above
g- prepares main meal	Coding ranges from 2-10 2 indicates non-traditional household, husband prepares meal 10 indicates traditional household, wife prepares meal
h-responsible for housework	Same as above
Fdom	= 1 if wife manages finances = 0 otherwise

(table continues)

[30] Only the number of children under the age of 18 was collected. In future research more detailed information about the number and ages of children should be collected. This would allow for more in-depth stage of life analysis and its affects on preference structures.

[31] Excluded from this section are the questions relating to child care as many people did not complete this section if there were not children in their household at the time. Further analysis could be conducted of this smaller sub-sample with the acknowledgment of this more homogeneous group could be conducted at a later date.

Variables	Definition
Mdom	= 1 if husband manages finances = 0 otherwise
Ideological variables	
Partner's career more important than own	Coding ranges from 2-10 2 indicates non-traditional household, wife's career more important than husband's 10 indicates traditional household husband's career is more important than wife's.
Primary role as breadwinner	Coding ranges from 2-10 2 indicates non-traditional household, wife is primary breadwinner 10 indicates traditional household husband is primary breadwinner.

In the estimation of the revealed preference model, the variable indicating whether or not fishing was available at the campground was not included because it was collinear with the variable indicating the availability of a beach. Two revealed preference models were estimated; the first includes only sociodemographic interaction terms, and the second includes a broader range of interaction terms (see Table 6.4). In the first model only four of the seven camping site attributes are significant, and all have the expected signs: cost, beach, facilities and firewood.

Significant interaction terms are created with males' relative income, number of children, and retired male partner variables. The interaction term of relative financial contribution of men to the total household income and availability of beaches is negative. If the male partner makes more than 75% of the household income, the availability of a beach is less important for the recreation choice. Two interaction terms are derived with the presence of children. In households with more than one child, fully serviced campgrounds are more important to the household; as well, the household is more sensitive to the cost of the trip. The last significant interaction term is with the male partner being retired combined with the attribute of having free firewood available. In this model the availability of free firewood is not as critical for retired couples.

Table 6.4: Results of the Multinomial Logit Revealed Preference Models
With Sociodemographic, Division of Labour, and Ideological Variables

Attributes	Model 1	Model 2
Cost + fees	-0.285**	-0.209**
	(-9.789)	(-4.486)
Beach	0.819**	0.684**
	(4.852)	(4.647)
Facilities	0.431**	0.714
	(4.549)	(1.650)
Wood	1.002**	1.508**
	(13.801)	(6.655)
ATV	-0.195	-0.175
	(-0.893)	(-0.797)
Trails	0.063	0.989**
	(0.443)	(2.053)
Road	0.081	-0.427
	(1.074)	(1.879)
Relative income * Beach	-0.282	
	(-1.946)	
Child * Fac	0.310**	0.295**
	(2.831)	(2.666)
Child *(Cost + fees)	-0.088**	-0.077**
	(-2.423)	(-2.117)
Retired *Wood	-0.437**	-0.466**
	(-2.662)	(2.858)
Fdom * Cost		-0.156**
		(-2.086)
Location * Facilities		-0.168**
		(-2.279)
Timing * Road		0.080**
		(2.338)
Equipment *Fac		0.115**
		(2.749))
Equipment * Wood		-0.0723**
		(-2.272)
Career * Trails		-0.132**
		(-2.15)
Career * Cost		-0.012**
		(-2.129)
Northeast Saskatchewan	-2.401**	-2.433**
(high level facility)	(-3.813)	(-3.861)
East Central Saskatchewan	-2.552**	-2.541**
(low level facility)	(-6.179)	(-6.153)
Northern Alberta	-2.221**	-2.228**
(high level facility)	(-7.808)	(-7.811)

(table continues)

Attributes	Model 1	Model 2
Northwest Alberta heartland	-2.938**	-2.971**
(high level facility)	(-9.815)	(-9.916)
SW of Northern Alberta heartland	-1.959**	-1.971**
(high level facility)	(-3.785)	(-3.806)
Northwest Saskatchewan	-2.20**	-2.209**
(high level facility)	(-8.882)	(-8.900)
Mountain Parks	1.015**	1.099**
(high level facility)	(2.788)	(3.006)
Log likelihood function	-1588.88	-1573.95
Adjusted R^2	.289	.295
(n=695)		

Note: - T-statistics are in parenthesis.
** is .01 significance level.
* is .05 significance level.

In the second model there are seven additional interaction terms, while the relative income term drops out. In households in which the wife is primarily responsible for financial management, the decision about where to go camping is more sensitive to the cost of the trip. There are four variables that reflect the individuals' perceptions of their household decision-making structure with respect to camping and camping equipment purchases. In households in which respondents perceive the husband as having the responsibility for choosing the camping location, the actual site chosen is more likely to have moderate to minimal facilities. In households in which the husband has primary responsibility for deciding the timing of the holiday, having a paved road to the campground is less important. When husbands are more likely to have the final say over the purchase of camping equipment, the household is more likely to choose campgrounds with higher-level facilities, and the availability of free firewood is less important. Households that reflect the ideology that the husband's career is more important than the wife's are more sensitive to the costs of the trip and less likely to choose campgrounds with trails.

6.2.4 Welfare Measures for Revealed Preference Model

Welfare measures can be interpreted as the household's willingness to pay per trip per household for a given change in an attribute level. The sign of the welfare measure indicates a loss if negative, and a gain if positive. Sample simulations are based on representative households from Saskatoon and Edmonton and are derived using the coefficients reported in Table 6.5. The attribute changes simulated are for Meadow Lake Provincial Park, the site at which the data were collected.

The welfare gain for the addition of ATV trails ranges from $6 to $7.50. The welfare measure for the loss of Meadow Lake Provincial Park ranges from $103 for a household from Saskatoon to $120 for Edmontonians. The loss of free firewood also results in a substantial loss of welfare, ranging from $34 to $41. This welfare measure is high, which may be a consequence of two factors. The first factor is that the variable for the availability of free firewood may be correlated with other variables in the model. The second factor is that the choice of camping sites for the respondents may be a protest vote against campgrounds that have begun to charge for firewood.

Table 6.5: Mean Welfare Measures for a Representative Individual for Changes in Attributes or the Loss of Meadow Lake Provincial Park ($/household)

Location	Pay for firewood	Allow for ATV	Loss of Meadow Lake Provincial Park
Saskatoon	-34.43	6.86	-103.87
Edmonton	-40.53	7.37	-120.21

6.3 Stated Preference Results

In many traditional environmental valuation exercises, the gender of the respondent is seldom taken into account. When it is considered, gender is often included in the individual utility function as a shift variable. The underlying assumption is that the

preference structure of the respondent represents the household structure as defined in the common preference model or that the differences in preferences can be captured in a dummy variable. The objective of this section is to explore whether preferences actually differ between men and women, as well as to investigate which personal characteristics affect their site choices. This was accomplished by modelling the individual preference data (the stated preference data) for both male and female. These results in turn indicate whether a common preference model or a bargaining model is the most appropriate framework in which to examine family vacation decisions.

Each summer families decided where to go camping based on several factors. These factors include such things as how far they were willing to travel, the type of facilities they wanted, and the type of activities the site had to offer. The site attributes were weighed against each other in light of the individuals' characteristics, such as their employment level, relative income, household income, and the presence of children in the household. The stated preference results examined here are derived from the choice experiment in which the choice set included two sites or the choice not to go camping.

6.3.1 Testing the Preference Structures

The results of three stated preference models are reported in Table 6.6. All the attributes are significant in the male and the combined[32] data sets, while two site attributes, access for ATV and paved roads, are not significant in the female model.

[32] In the combined data set, estimation data from both the male and female data set were used.

Table 6.6: Results of the Stated Preference Models for the Male, Female, and Combined Data Sets

Variables	Combined data (n=5015)	Male data (n=2519)[33]	Female data (n=2496)
Cost	-0.2674**	-0.2732**	-0.2907**
	(-18.239)	(-14.892)	(-15.174)
Facility	0.2306**	0.1530**	0.3282**
	(9.90)	(4.672)	(9.358)
Wood	0.2120**	0.1977**	0.2478**
	(9.085)	(5.920)	(6.943)
Trails	0.2336**	0.2481**	0.2445**
	(10.028)	(7.608)	(7.559)
Beach	0.5766**	0.5446**	0.6581**
	(20.423)	(15.917)	(18.565)
ATV	0.0512*	0.1027**	0.005
	(2.315)	(3.108)	(0.156)
Fish	0.4036**	0.4693**	0.3787**
	(15.461)	(13.944)	(10.928)
Road	0.0641**	0.1070**	0.0357
	(3.076)	(3.383)	(0.662)
No camping	-0.9821**	-1.0305**	-1.0321**
	(-16.452)	(-13.449)	(13.039)
Scale	0.0822		
	(1.549)		
Log likelihood	-4643.26	-2349.62	-2277.21

Note: - T-statistics are in parentheses.
** is .01 significance level.
* is .05 significance level.

McFadden (1973) has shown that the choice probabilities take the following form:

$$\exp \mu(V_j) / \sum_{k \in C} \exp \mu(V_k), \qquad (6.1)$$

where μ is a scale parameter. The scale factor is inversely related to the variance and cannot be estimated independently of the utility parameters because of confounding

[33] The total number of choice tasks completed differs between the two samples because not all choice tasks were completed in some of the surveys.

effects. As a result the scale parameter is ordinarily normalized to 1. However, when multiple data sets, such as the male and female data, are pooled, the ratio of the scale factors can be isolated to facilitate the comparison of the parameters (Swait and Louviere 1993). This is done by normalizing one scale parameter to unity and letting the scale parameter for the second data set vary in the estimation process outlined in Swait and Louviere (1993) and Adamowicz et al. (1994, 1997). This method recognizes that in the estimation of one data set the μ is not identifiable, but that in estimations involving multiple data sets their ratio(s) can be identified (μ_1/μ_2). This procedure allows us to determine whether the parameters differ due to the fact that one data set is "noisier" than the other or whether the parameters actually differ after taking the scale factor into account.

Using the likelihood ratio test described in Swait and Louviere (1993), the hypothesis that the parameter estimates for the men and women are equal is rejected (see Table 6.7). This result suggests that the parameters for the male and female samples of this choice task have underlying models with different parameters, implying that the preferences of the two groups differ systematically. Given that the scale parameter does not equal 1, it can be concluded that it is not adequate to interview only one individual from the household and assume that the household preferences have been captured. This result indicates that a bargaining model is a more appropriate framework than the common preference model to examine this type of household decision.

Table 6.7 Test of Equality of Male and Female Preference Structures Based on Stated Preference Estimations

Log Likelihood		
Pooled data	-4643.26	
Male data	-2349.62	
Female data	-2277.21	
LRI χ^2 (10 df)[a]		32.86

Note: [a]Critical value for 10 df at 95% is χ^2 18.31

6.3.2 Determinants of the Gendered Preference Structures

Given that the preference structures for camping site attributes differ between men and women, further analysis was conducted to examine whether these gendered structures are influenced by different sociodemographic variables. Because sociodemographic data are constant for each individual, interaction terms were created to enable estimation (see Table 6.8 for a description of the interaction variables). Interaction terms were based on individual characteristics: age, education level, level of relative contribution to the household income, and employment levels. Two interaction terms were at the household level: number of children and household income.

Table 6.8: Definition of Interaction Terms in Stated Preference Models

Variables	Definition
Retired	=1 if respondent is retired =0 otherwise
Education	= 1 if education level of respondent is greater than high school =0 otherwise
Relative income	=1 if relative level of income contribution to the household is greater than 75% =0 otherwise
Children	=1 if number of children in household is greater than 1 =0 otherwise
High income	=1 if household income level is greater than $75,00 =0 otherwise
Employment level	=1 if respondent is employed full time =0 otherwise
Age	=1 if respondent is older than 55 years =0 otherwise

The results indicate that all the attribute variables had the expected signs in both models. However, there are some differences between the two data sets that are noteworthy (see Table 6.9). Similar to the results from the revealed preference estimation, two site attribute variables in the female model are not significant: the

availability of trails for ATV's and the road quality. In contrast, in the male results both of these variables are significant at the 1% level. In addition, the magnitude of the parameters is fairly similar between the two models with the exception of the level of facilities and access to a beach. In the female model the marginal rate of substitution[34] for the level of facilities is double that of the male model. For women, having access to better facilities is more important than it is for men. The same is true for having access to the beach; women have a marginal rate of substitution that is one and a quarter times larger than that of men.

Interestingly, there are some similarities in the roles of the sociodemographic variables that drive these preference structures. The presence of more than one child increases the desirability of having access to a beach for both partners; however, the magnitude of the marginal rate of substitutions is larger for males compared to females. The level of household income interacted with the cost of the trip is also a determining factor for both men and women. The effect is positive, indicating that as the level of household income increases, the cost of the trip becomes a less important factor. A third sociodemographic factor common between both models is that full-time employment affects the preference structures. However, the attributes that interact significantly with full-time employment are not the same in the two models. Women employed full time find fishing to be a less attractive holiday site attribute. Road quality is a less important attribute when the men are employed full time. The relative financial contribution to household income is an important factor in the female model only. If the wife's level of financial contribution to the household income is 75% or more, the cost of the trip has less of a negative impact on her utility.

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[34] The parameter estimates are actually $\mu\beta$, where μ is the scale and β is the true parameter (Swait and Louviere, 1993). To be able to discuss the parameters without the confounding effect of the scale, marginal rates ($\beta i/\beta\$$) are used.

Table 6.9: Results of the Stated Preference Models for the Male and Female Data Sets with Socio-demographic Interaction Terms

Variables	Female model (n=2496)	Male model (n=2519)
Travel cost + fees	-0.331**	-0.297**
	(-14.916)	(-14.162)
Facility	0.341**	0.152**
	(9.626)	(4.590)
Wood	0.254**	0.198**
	(7.332)	(5.953)
Trails	0.249**	0.248**
	(7.682)	(7.592)
Beach	0.537**	0.376**
	(9.223)	(6.840)
ATV	0.003	0.098**
	(0.078)	(2.918)
Fish	0.448**	0.461**
	(9.966)	(13.683)
Road	0.036	0.298**
	(1.088)	(3.204)
Constant	-1.07**	-1.06**
	(-13.211)	(-13.705)
Number of Children * beach	0.201**	0.261**
	(2.768)	(3.775)
High income * (cost+fees)	0.074**	0.047*
	(3.171)	(2.087)
Relative income * (cost + fees)	0.099*	
	(1.963)	
Employed * fish	-0.156*	
	(-2.212)	
Employed *road		-0.209*
		(-2.105)
Log Likelihood	-2251.94	-2350.75
Adjusted R^2	.177	.149

Note: - T-statistics are in parentheses.
** is .01 significance level.
* is .05 significance level.

6.3.3 Welfare Measures for Stated Preference Models

In this context welfare measures can be interpreted as an individual's willingness to pay per trip per person for a given change in an attribute level or the loss of a camping site. For these calculations the stated preference coefficients for the male and female models including the interaction terms are used. This combination of coefficients and data allows a comparison of the welfare measures derived from the two different preference structures combined with data from the actual household decisions. The attribute changes simulated are for the Meadow Lake Provincial Park. For the simulations a representative male and female from two communities, Edmonton and Saskatoon, are used.

The welfare measures are illustrated in Table 6.10. These results reveal that women from the two communities respond in the same direction as the men do to all four of the changes, though there is a variation in the magnitude of these welfare changes. The only positive change was associated with the addition of access to ATV trails in the park. Men experience a positive welfare increase of $8 to $9 per trip, while the women do not receive any welfare benefits or losses, because this attribute is not significant in the female model. The magnitude of the welfare gain for the men is similar to that estimated with the revealed preference results. The loss of fishing was more significant than the loss of the free firewood. The decrease in welfare associated with the loss of fishing in the Park ranged from $22 to $27. Again the Saskatoon households experienced a larger loss than the Edmonton households, and Saskatchewan males experienced the highest losses. Both men and women respond to the loss of free firewood, with a decrease in welfare ranging from $13 to $15 per individual per trip. The welfare loss associated with the loss of firewood is greater for the women in both communities. Loss of the Meadow Lake Provincial Park altogether results in the largest welfare losses, with Saskatchewan experiencing the greatest losses. The welfare losses range from $39 to $47 per individual per trip. The magnitude of the revealed preference results for the loss of firewood and the

loss of Meadow Lake Provincial Park when calculated per household per trip is approximately three times greater. These figures suggest that Saskatchewan campers value Meadow Lake Provincial Park more than Edmonton campers do. The differences in values may be attributed to the fact that there are fewer camping alternatives in Saskatchewan and the distance to these alternatives is greater for Saskatoon residents than for Edmonton residents to travel. However, the opposite results occur in the revealed preference model in which Edmonton campers experience greater losses than the Saskatoon campers do.

Table 6.10: Mean Welfare Measures for a Representative Individual per Trip for Changes in Attributes or the Loss of Meadow Lake Provincial Park ($/Individual)

Respondent	Loss of fishing	Pay for firewood	Allow for ATV	Loss of Meadow Lake Park
Saskatoon				
Men	-26.68	-14.25	9.19	-45.54
	(2.37)	(2.50)	(3.45)	(3.59)
Women	-22.56	-15.02	0	-39.32
	(2.25)	(2.13)		(3.16)
Difference of Means (t-stat)	12.62	2.34	3.45	13.03
Edmonton				
Men	-24.55	-13.17	8.51	-41.94
	(2.35)	(2.53)	(3.22)	(3.66)
Women	-22.40	-14.91	0	-38.95
	(2.29)	(2.34)		(3.22)
Difference of Means (t-stat)	6.56	5.04	3.22	6.12

Note: Standard errors are in parenthesis.

To determine whether there are significant differences between the welfare measures of men and those of women, a difference of means test was conducted, and the results are summarized in Table 6.10.[35] This test indicates that women and men experience statistically different welfare changes when the attributes of their camping locations change. In addition, the relationship of the differences between genders is not the same for the two locations; the magnitude of the differences, for the most part, is greater in the Saskatchewan comparisons. The differences between the men and women's welfare measures are greater in the Saskatoon simulations for three of the four attributes. In the Saskatchewan comparisons the largest difference is for the loss of Meadow Lake Provincial Park. In contrast, the largest difference in welfare measures for the Albertans is the loss of fishing. In both instances women and men experience a substantial reduction in welfare as a result of Meadow Lake Provincial Park's closing.

6.4 The Bargaining Model

The results in the previous section support the hypothesis that women and men have different preference structures for this shared household good. The model outlined in section 2.6 posits that household decisions for shared household goods are outcomes of two or more people in a cooperative bargaining framework. Each individual enters the bargaining framework knowing their own preference structure, $q_h\beta_{m,f}$, and asserting their influence over the decision according to the existing power balance of the household, δ_h. There are two objectives of this section of the thesis. The first is to examine the household preference, V_h, as a combination of the preference structures of the individual bargaining partners, $V_{m,f}$. In this formulation the individual preferences are weighted by the power variable of the household, δ_h:

[35] The means for each welfare change were calculated by using a sample of 100 means. These 100 means were each calculated from 100 random draws using Hanneman's (1982) definition of a welfare change.

$$V_h = \delta_h(s_h^m)V_m + (1+\delta_h(s_h^f))V_f \qquad (6.2)$$

where $0<\delta_h<1$ and s_h are the characteristics of the individual and the household that influence the power structure. Estimating a value for δ_h tests whether this shared good is a bargained good. The second objective is to examine which household and personal characteristics and which personal ideologies captured in δ_h may influence the balance of power in household decision making. The roles of the variables described in Blumberg and Coleman's (1989) theory of gender balance are empirically tested to determine whether they influence the household decision about where to camp.

6.4.1 Estimation Procedure

In the estimation of δ_h, the household preferences are represented by the indirect utility function that is derived from the revealed preference data and the individual preference structures for each partner that are derived from the stated preference data.

$$V_{RP}^h = \delta^h \ (q_{RP}^h \beta_{SP}^m) + (1-\delta^h)(q_{RP}^h \beta_{SP}^f) \qquad (6.3)$$

The dependent variable, V^h_{RP}, is not observed; however, the actual household decision about which park was chosen is observable. Thus, the parameter, δ, is estimated as the value that provides the best fit between the utility, $q_{RP}\beta_{SP}$, and the actual choice (see Chapter 4, Table 4.3 for results). The q^h is a matrix of attributes of the actual sites reported in the trip logs, and $\beta^{m,f}$ is the vectors of coefficients from the two gendered stated preference models. The coefficients reflect the two different preference structures of the two partners. Different sets of factors captured in the interaction terms reflect each gender's preference structure.

A grid search method is used to determine estimates of δ_h for each household.[36] In the procedure estimates of δ are derived that calibrate the two sets of preferences to best

[36] Initially, using a maximum likelihood approach, an attempt was made to estimate the power variable, δ, and δ as a function of household characteristics using the stated preference coefficients and the revealed preference data. In order to limit δh to be within 0 and 1, δh was specified as follows:

predict the actual choice vector. The estimation procedure uses a likelihood function to estimate the δ that provides the highest probability of predicting the actual choice. In this procedure the likelihood function is specified as follows:

$$\ell = \sum_{n=1}^{N} \sum_{i \in C_n} Y_{in} (\delta(\beta^{m-w} q_{in}^{kp} - \ln \sum_{j \in C_n} e^{\beta^{m-w} q_{jn}^{kp}}) + (1-\delta)(\beta^{f-w} q_{in}^{kp} - \ln \sum_{j \in C_n} e^{\beta^{f-w} q_{jn}^{kp}})) \qquad (6.4)$$

Estimates of δ are calculated for each individual household. The value for δ starts at .0001 and with each iteration δ increases by 0.0001 up to the value of 0.9999. From these calculations the δ with the highest associated likelihood function is identified for each household. This value represents the weight placed on each of the preference structures when comparing the individual partners' preferences to the actual household decisions. The values of δ for each household are then used as the dependent variable in the next stage of estimation.

The second stage of the estimation procedure examines what household characteristics, s_h, may explain these estimates of power.

$$\delta_h = f(s_h) \qquad (6.5)$$

The household characteristics to be examined are drawn from the sociological literature on household power and from the intrahousehold allocation literature. Equation 6.6 is a traditional logit model estimated using proportions as the dependent variable. This is structured as a two-alternative multinomial logit model with the data on the household

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$$\delta_h = \left(\frac{e^{\gamma s}}{1 + e^{\gamma s}} \right)$$

where s is the household characteristics and γ is the parameters. Many different formulations of the power function were attempted; however, standard errors were never obtained due to the fact that the likelihood function appeared to be very flat.

variables associated with the first alternative and zeros associated with the second alternative. The multinomial logit is expressed as:

$$\ell = \sum_{n=1}^{N} \sum_{i \in C_n} Y_{ik} (\beta' q_{in} - \ln \sum_{j \in C_n} e^{\beta' q_{jn}}) \qquad (6.6)$$

where Y_{ik} typically equals 1 if the individual k chooses site i, and otherwise it equals 0. However, in the proportional logit Y_{ik} is $\in (0,1)$. The proportional logit model accommodates for this by allowing the dependent variable to range from 0 to 1 on the condition that the proportional values sum to 1.

6.4.2 Estimation Results

The distribution of the estimates for δ obtained from the grid search is shown in Table 6.11. As the value of δ nears 1, the men's preferences better reflect the household decisions; and as the value of δ nears 0, the women's preferences better reflect the household decisions. It appears that this recreational decision is not necessarily a compromised decision for most households since 95% of the households' revealed preference structure are similar to only one partner's preference structure. In fact, the majority of the households' preference structures more closely reflect the women's preferences than the men's. For approximately 5% of the households this decision seems to be a compromise between both partners because their holiday choices do not clearly reflect either the husband's or the wife's preferences.

Table 6.11: Distribution of Weighting Parameter δ

	δ	Number	% of households
Female preferences dominant	0=δ	200	78.4
Bargained preference structure	0>δ>1	13	5.1
Male preferences dominant	1=δ	42	16.5
Total		255	100

This distribution indicates that decisions regarding family camping trips may not be negotiated or that one individual has more influence in the final outcome than his or her respective partner. This result contradicts the responses obtained when the respondents were asked directly who is responsible for deciding the location and timing of their camping trips. They indicated that these decisions are for the most part shared (see Chapter 5). However, when we examine the distribution of the δ variable, these findings are not substantiated.

The second stage of the estimation procedure investigates what household characteristics may provide insight into understanding the determinants of these decision structures. These determinants of the power structure are drawn from sociological and intrahousehold allocation theories. Based on the resource theory posited by Blood and Wolfe (1960) and the gender theory presented by Blumberg and Coleman (1989), variables that measure the relative and absolute levels of employment, education, and income are examined. According to Pahl (1999, 1983) and Dobblesteen (1996), how households organize their finances can also inform us about the power dynamics existent in household decision making. Variables identifying which households have wife- or husband-dominated financial management strategies are created and examined. Blumenstein and Schwartz (1991) suggested that the resource theory is an insufficient explanator of how power is distributed in a household and that an understanding of the household's ideology, that is, who they believe the primary breadwinner should be in their household, also needs to be taken into account. The effect of income on decision-making power varies depending on whether the household is ideologically traditional, with the husband having authority, or whether the household rejects the husband's authority. The variables used in the estimation are defined in Table 6.12 below.

Table 6.12: Definition of Variables Used in the Bargaining Model

Variables	Definition
Socio-demographic	
Retired	=1 if male respondent is retired =0 otherwise
Education	= 1 if education level of respondent male is greater than female =0 otherwise
Male's relative income	Continuous variable
Male income	Continuous variable
High income	=1 if household income level is greater than $75,000 =0 otherwise
Children[37]	=1 if number of children in household is greater than 1 =0 otherwise
Female at home	=1 if female respondent is stays at home full time =0 otherwise
Female full-time employment	=1 if female respondent is employed full time =0 otherwise
Age	=1 if male respondent is older than female respondent =0 otherwise
Division of household tasks[38]	
a-Final decision over holiday location	Coding ranges from 2-10 - 2 indicates non-traditional household, wife dominated decision -10 indicates traditional household, husband dominated decision
b-….holiday timing	Same as above
c-….new vehicle purchase	Same as above
d-…new camping equipment	Same as above
g- Prepares main meal	Coding ranges from 2-10 2 indicates non-traditional household, husband prepares meal 10 indicates traditional household, wife prepares meal
h- Responsible for housework	Same as above
Fdom	= 1 if wife manages finances = 0 otherwise
Mdom	= 1 if husband manages finances = 0 otherwise

(table continues)

[37] Only the number of children under the age of 18 was collected. It would have been beneficial to collect the number in age categories (0-6 years, 6-12 and 12-18 years). This would allow for more in-depth stage-of-life analysis and its affects on preference structures.

[38] Excluded from this section are the questions relating to child care, because many people did not complete this section if there were no children in their household at the time. Further analysis could be conducted at a later date of this smaller subsample with the acknowledgment of this more homogeneous group.

Variables	Definition
Ideological variables	
Partner's career more important than own	Coding ranges from 2-10 2 indicates non-traditional household, wife's career more important than husband's 10 indicates traditional household husband's career is more important than wife's.
Primary role as breadwinner	Coding ranges from 2-10 2 indicates non-traditional household, wife is primary breadwinner 10 indicates traditional household husband is primary breadwinner.

Only the significant variables are included in the models reported in Table 6.13. There are several variables that were not significant that are worth noting. Sociodemographic variables such as the number of children in the household and the relative age of the two partners have been identified to be potentially influential variables. In fact, in most of the travel and leisure research, the number and age of the children were noted as increasing the females' relative input into the decision (Fodness 1992). Division of labour and areas of decision making have been cited as potential indicators of the household power structure (Blumenstein and Schwartz 1991; Pahl 1995; Dobblesteen 1996). For this shared household good neither the division of household tasks nor the structure of household financial management are significant indicators of the weighting function. The fact that these variables are not significant in this decision structure suggests that having influence, or the perception of influence, in decisions in other areas of the household, such as managing the finances, does not always translate into influence in other dimensions of household management.

The significant variables included in the two models are the household's ideology of who the breadwinner in the household should be and who is responsible for deciding where the family would go on vacation. The "breadwinner" variable is negative and of the same magnitude in both models. This result indicates that the more traditional the household is, the more likely the holiday location is to reflect the preference structure of the wife. The "vacation decision maker" variable is positive and of the same magnitude

in both models. The variable is coded such that the larger value indicates a more traditional household in which the husband makes the decision and a lower value if the wife makes the decisions. In the households in which the men make the decision the weighting nears 1, indicating that the camping site choices more closely reflect the husband's preference structure. This result confirms the reliability of the responses and the preference structures.

The two models differ in how income is defined. The first model includes the husband's absolute level of income and the second includes the relative contributions of income to the household by each partner. Both variables are strongly significant in separate models, but neither is significant if modelled together due to collinearity. Both of these income variables have negative coefficients of approximately the same magnitude, indicating that as the income of the husband increases, it is more likely that the location of the holiday will reflect the wife's preferences. In turn, this suggests that the wives of men with higher incomes have more influence over the planning of the holiday camping trips. A quadratic term for the husband's income is estimated but found to be not significant.

A second difference between the models is that in the first, relative education level is included; and in the second, a variable indicating that the wife stayed at home full time is included. In the first model the relative education level was positive, indicating that in households in which the husbands have a higher level of education than their wives, the attributes of the camping choice are more likely to reflect the husbands' preferences. In the second model the variable indicating that the wife is at home full time is positive. This suggests that in these households the holiday location chosen more closely reflects the husband's preferences.

Table 6.13: Household and Power Structure Determinants of the Weight δ (n=255) [39]

Variables	Model 1	Model 2
Constant	-2.302	-1.0667
	(-1.494)	(-0.662)
Husband's absolute	-0.0173**	
level of income	(-2.821)	
Male is breadwinner	-0.3377**	-0.3393**
	(-2.382)	(-2.362)
Relative education	0.70267*	
levels	(1.888)	
Responsible of holiday	0.6476**	0.6022**
location	(2.902)	(2.737)
Relative income level		-0.0139**
		(-2.602)
Wife stays at home		0.795*
		(1.873)
Log likelihood function	-110.33	-111.21
Adj. R^2	.363	.358

Note: - T-statistics are in parenthesis.
** is .01 significance level.
* is .05 significance level.

6.5 Summary

It is interesting to note that some of the same factors that drive these stated preference and revealed preference models also influence the bargaining estimations. The factors that are common to all three models are the income variables and employment levels (fully employed or retired). While the presence of children is significant in revealed and stated preference models, they are not significant in the bargaining model. In addition, in the revealed and stated preference models, the site attributes most commonly significant when combined with these sociodemographic variables are cost, level of facilities, the availability of a beach, and access to free firewood. Only in the

[39] The sample size is 255 households. The division of labor and ideology sections as well as level of household income were not always completed fully. This results in a smaller sample size for these estimations.

revealed preference and bargaining models are a broader set of variables considered: division of household responsibilities and ideological variables. Division of household responsibilities and decisions is significant in the revealed preference models but not in the bargaining models, while ideological variables are significant in both. The results in the revealed preference, stated preference, and bargaining models are mixed in that each model identifies different, but overlapping, sets of "marital power" variables as the determinants of the household decision or preference structure. Although these results are mixed, there is still substantial evidence to suggest that research on household decisions needs to take into account the different preference structures of individuals and their relative level of power in the decision-making structure.

CHAPTER 7

DISCUSSION

7.1 Introduction

Economic modelling of decisions made by groups is a complex problem, whether it is a small group such as a household or a large group such as a corporation. Typically, decisions made by a group have been theoretically and empirically modelled as if there were one decision maker or as if the decision reflects the desires of all the individuals within the group. What is often neglected in these models is that the individuals involved in the decision process have their own set of preferences, and the preferences may differ significantly between individuals. The resulting decision then may be a compromise between these preferences based on the power or influence of each individual within the group. Acknowledging this, a class of intrahousehold allocation models has been developed which recognizes that there are at least two partners in a household who bargain over decisions. While research in this area recognizes theoretically that both partners have input into the decisions, these works have not been able to examine the factors within the decision-making process because empirical research has typically relied on revealed preference data. Here an attempt has been made to address this by examining jointly individual preferences and household decisions. The first section of this chapter is an overview of findings and how they relate to the literature. The second section explains the limitations encountered in the study.

7.2 Overview of the Findings

This examination of the different preferences of household decision makers begins to reveal the relationships between gender, elements of power, and household decisions. Three major findings arise from the empirical results. The first is that the preferences for recreational campground characteristics differ between men and women. Second, a number of the power variables do influence decision making. Last, the results

of the bargaining model are, in part, contradictory to the hypothesis that shared household goods are a compromised outcome of a cooperative bargaining structure.

7.2.1 Preference Structures

The testing of the gendered stated preference models indicate that the preferences of women and men do differ. The differences occur in attribute coefficients, in interaction terms that influenced their choices, and the magnitude of the welfare measures. The men prefer camping sites with access to ATV trails and good quality roads, and the women prefer campgrounds with a beach area and a higher level of facilities and services. The difference in preferences is further supported by the fact that some of the interaction terms differed between the two gendered models.

Traditionally, resource and environmental economists have used the common preference model that assumes that male and female preference structures are identical. The results here support the growing recognition that the common preference model may not be the most appropriate model for environmental valuation (Smith and van Houvten 1999). Given these differences, it can be concluded that when conducting analysis on intrahousehold allocation, a bargaining model that includes individual preferences should be used. The preferences of both decision makers should be considered in a joint analysis. If the collection of partner data is not feasible, at the very least, samples for analysis on environmental or recreational issues should have equal representation of both men and women to ensure that gendered preference structures are captured.

7.2.2 Elements of Power

The second finding revealed that the elements of power play an instrumental role in household decision making. They include absolute and relative income, financial management strategies, employment levels, education levels, ideology, size of family, and division of household labour.

Income. Blumberg and Coleman (1989) theorized that the absolute and relative level of income that the wife earns are two major components of her overall economic

power in the household, and these affect the "power outcomes" such as household decisions.[40] Both variables play significant roles in the analysis presented earlier. The results from the bivariate analysis indirectly support Blumberg and Coleman's theory in that the higher a husband's absolute income was, the less influence the wife had on the household decisions made. Interestingly though, the bargaining model exhibited the opposite result. In this case the higher the husband's income, the less his preferences resembled the household decision outcome.

The wife's relative income is the second component of her overall economic power. The bivariate analysis supports Blumberg and Coleman's theory in that as the woman's relative income increases, her influence over decisions increases. The bargaining model results, once again, are contrary to the sociological theory and indicate that the higher the men's relative income (and the lower the wife's relative income) the less influence he has on decision outcomes. While both the bargaining analysis results are contrary to sociological theories on marital power, they are consistent with the economic theory of opportunity cost of time. This theory states that individuals apply their efforts to activities for which they earn the highest return. This suggests that the individual who has the highest earning potential in a household would apply his or her effort to earning income, while the partner who has a lower income potential may be responsible for more of the household decisions. This would occur as the opportunity cost of the second individual to allocate time to household decisions is lower than the higher earning individual.

Financial management. Access to household income is a potentially important source of power in the decision-making process and the third component of the wife's overall economic power (Pahl 1989, 1995; Blumberg and Coleman 1991; Cheal 1993;

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[40] Blumberg and Coleman's (1989) theory has been derived from a number of influential works on marital power (Blumstein and Schwartz 1983; Huber and Spitze 1983; Hood 1983; Blood and Wolfe 1960).

Dobblesteen 1996). Access is often aligned with how a household manages its finances, and analysis of financial management strategies may provide an important indication of the partners' respective influence into different types of household decisions. Similar to the findings of Cheal (1993) and Pahl (1989), the financial management strategy for the majority of the households in this sample is a shared strategy, and in households in which there were dual earners, the trend was towards income pooling with a more flexible sharing system. Results from the bivariate analysis and the revealed preference models are similar to those of Dobblesteen (1996) in that they indicate that financial management is an important indicator of influence in the decision-making process. However, the level of influence exerted by either partner differs depending on which financial management strategy is employed and on the type of decision being made. Cheal (1993) supported this further with his findings that women who "make substantial monetary contribution to the maintenance of the household are more likely to negotiate reciprocal control over income and joint ownership of property presumably because of their greater bargaining power" (p.209). Similar to the results found here, Dobblesteen (1996) and Cheal (1993) concluded that who has access and who controls the resources are important defining factors of decision-making power in the household.

In contrast, a number of household financial management variables were included in the initial bargaining analysis estimations, and none of these variables were significant. Therefore, these results suggest that although the financial management variable may influence household decisions at some level, it did not play a significant role in the bargaining of the camping site choice decision.

Employment. A related power variable not explicitly identified in the theory of gender balance (Blumberg and Coleman 1989) is the level of employment of the wife. Blumstein and Schwartz (1989) found that the level of employment of the wife influences the power outcomes in the form of division of household tasks. The bivariate and bargaining analysis results support the sociological literature. The bivariate analysis

indicates that women who work full time have more influence in the household decisions, while in the bargaining analysis women who stay at home have less influence in the camping site choice decision.

Education. While the relative level of education between partners is not often considered in the marital power literature, there are two potential ways in which it can affect bargaining power. Education increases both knowledge and self-esteem, leading to an increase in bargaining effectiveness. Thus the level of education can potentially change the power base or threat point by leading to a higher income. Education can also change the power process by providing individuals with the knowledge and self-confidence to better represent their own preferences. This notion is supported further in the bargaining analysis, which finds that if men have a higher level of education than their wives, their preferences are more closely reflected in the household preferences for a camping site.

Ideology. Blumberg and Coleman (1989) pointed out that the overall economic power an individual possesses in a relationship is altered by a number of factors at the individual, relationship, and societal levels. They termed these modifications the *power process*. One factor that modifies the overall economic power of the individual household member is the ideological belief that individual holds about roles within the household (Blumberg and Coleman 1989). Blumstein and Schwartz (1991) found that the ideological beliefs of the household affected how responsibility for the household tasks was divided between the husband and wife. Their results indicated that in households whose members hold an anti-provider ideology, husbands perform more household tasks than do their counterparts in more traditional households. However, their wives still perform significantly more tasks than they do. Examination of the anti-provider ideology in the bivariate analysis provides only marginally significant results in support of marital power theory. On the other hand, the bargaining analysis results indicate that the more the household tends towards the provider ideology, the less likely the husband's preferences

are reflected in the camping site decision. Once again the bargaining analysis results contradict marital power theory.

Size of family. A factor not addressed in Blumberg and Coleman (1989) which has been identified in the marketing tourism literature is the effect of the presence of children in the household on household decisions (Jenkins 1978; Filiatrault and Ritchie 1980; Assar and Bobinski 1991; Fodness 1992). These researchers found conflicting results. In one study husbands in families had more influence than did husbands in couple relationships (Filiatrault and Ritchie 1980), while in another study women with children were found to have more influence in certain vacation subdecisions. The results presented here illustrate that the presence of children in the household does influence the decisions made and the preferences for different site attributes. The results from the bivariate analysis indicate that in households with one to two children, women had more say than in households with no children or more than two children. In both the revealed and the stated preference models, the presence of children affected the household or individual's sensitivity to different site attributes such as cost and facilities, and it made beaches more attractive. Understandably, household decisions are more sensitive to travel costs because this cost variable is derived from the distance to the site because there is a disutility associated with driving long distances with young children. The more children in a family, the less willing the parents might be to drive a substantially longer distance to reach their destination.

Division of household tasks and decisions. How household tasks are organized between the two partners and who has more influence in household decisions are affected by each individual's bargaining power. Women who contribute to the total household income through employment outside of the household are gaining some measure of systematic power, as reflected in the growing trend of men contributing to household tasks (Blumstein and Schwartz 1991). However, as Blumstein and Schwartz's results also indicate, an equitable distribution of household tasks still does not exist in the majority of

these households. Blumberg and Coleman (1989) suggested that there are a myriad of complex intervening reasons that an increase in female contribution to income may not translate into a more equitable division of household labour.

From the results of the bivariate analysis in households in which the two household tasks are evenly shared, the household decisions tended to follow a more egalitarian structure. The tendency varied from what would be expected because in households in which either the husband or the wife had primary responsibility for the two household tasks, the household decisions tended to be more husband dominant. However, the division of household task variables are not significant in either the revealed preference or the bargaining models. What are significant in the revealed preference models are interaction terms derived from variables for the other household decisions. These interaction terms provide indirect evidence that there is a significant relationship between how the responsibility for other decisions is divided between the partners and the camping site choice.

7.2.3 Bargaining Analysis

The last finding is that the bargaining analysis indicates that the choice of a camping location, in the majority of the households, is not necessarily a compromised bargaining decision. This result is somewhat contrary to the data collected in other sections of the survey that indicated the responsibility for vacation decisions was shared between the two partners. The marketing and consumer behaviour literature suggested that there is a trend for more household decisions to be made jointly if there is a good that will be used by everyone, as in a vacation (Engel, Blackwell, and Miniard 1993). The empirical findings in earlier intrahousehold allocation literature suggested that shared household goods are an outcome of a cooperative bargaining framework in which the preferences of each partner influence the decision. However, the results from the bargaining analysis suggest that the household preference structure, for the majority of the households, more closely reflect the wife's preferences. There is only a small

proportion of households with an outcome that reflects either the husband's preferences or a combination of both.

One possible explanation for these results is that there may be a hierarchical structure of decision making for both shared and private household goods. At the top level of the hierarchy all of the decisions may be considered and discussed, including vacations. Partners may bargain over responsibility for different types of decisions in the household, or the trade-off may occur between camping vacations and other types of trips. For example, one partner may agree to travel to a particular camping site if the other partner agrees to visit the in-laws on another trip. In this case the trade-off occurs at a decision level well above the choice of camping location. The choice to go camping is a bargained decision, although the choice of the actual camping location may not be bargained.

A second possibility is that even though the responsibility for a vacation decision is considered to be a joint decision, research has demonstrated that in actuality the process is divided into several functional subdecisions. In terms of a decision structure for vacations, the first level of decision may be what type of holiday the family will take in any given year.[41] Considerations at this level may include cost, time of year, and vacation time available. If the decision was made to go on a summer holiday, the next decision may be whether or not to go camping. Other subdecisions include duration, activities, the distance the family is willing to travel, and level of facilities. Within shared decision making, partners may bargain about the details of the holiday. Some of these may be joint decisions, some may be autonomic decisions, while others may be specialized decision areas (Jenkins 1978; Filiatrault and Ritchie 1980; Nichols and

[41] In an attempt to understand the decision-making process involved in determining family vacations, information was collected about all types of trips the family took in the year. Unfortunately, not enough households provided the information to be able to understand whether there were trade-offs being made between holiday types.

Snepenger 1988; Fodness 1992). At any level of the decision hierarchy, a decision may shift from being a shared decision to being an autonomic decision. Thus while the decision to take a camping vacation may be a joint one, the logistical decisions may switch to one individual's responsibility. There are two possible explanations for this switch. The first is that the partner with the lower opportunity cost of time will be responsible for the decision. This explanation follows the current trend to move towards an autonomic decision structure for more mundane and less risky decisions (Engel, Blackwell, and Miniard 1993). On the other hand, the choice of location and camping site may be a specialized decision because one partner has invested substantial time collecting information about the various options available. The results of the bargaining model suggest that the women in this sample are predominantly responsible for the location choice. Unfortunately, there are not adequate data to determine whether either explanation is appropriate. These results are contrary to marketing and tourism literature which stated that many of the subdecisions are made jointly (Jenkins 1978; Nichols and Snepenger 1988; Fodness 1992) or that if they are not joint decisions, then they are dominated by the husband (Filiatrault and Ritchie 1980).

Implicit in the above discussion is that for the individuals who make the decision, their preferences are directly reflected in the final household decision. However, this may not be the case. There could be two other possible explanations. First, if the decision makers are altruists, they will take into account what their partners' preferences are and may choose camping sites that would please their partners rather than themselves. A second possibility is that the bargaining analysis may indicate only who has the most influence in this particular decision. The decision may be shared or even made by the partner whose preferences are not reflected in the decision. In order to be able to untangle who is making the decision and whether the decision maker's preferences are truly reflected in the decision, more detailed information is needed about the decision-making structure in the household.

A third possibility may be a direct result of the inherent problems associated with revealed preference data. These data are aggregated, which results in the characteristics of individual sites not being accurately represented. This ultimately results in inefficient and/or biased estimates. An additional factor that could lead to misrepresenting results is that the characteristics for the sites are determined by referring to tourism information published by provincial government departments. This information may not accurately represent the respondents' perception of the sites they visited or their activities at these sites.[42] As a result preferences derived from the revealed preference model may inaccurately represent the household's vacation preferences. One example in this study is evident for the ATV attribute. In the stated preference models male respondents preferred access to ATV trails at the campground, while for females the attribute was not significant. The preference structure for the men captured in the stated preference results represents a good that is not common in either Alberta or Saskatchewan[43] and as a result occurs infrequently in the revealed preference data. Consequently, the ATV variable is not significant in the revealed preference model. The lack of significance of the ATV variable is supported by research conducted in the Foothills Model Forest.[44] McFarlane,

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[42] The majority of the campgrounds in Alberta and Saskatchewan do not have access to ATV trails at the site and were coded as such. This, however, does not preclude that the campers may have used the campground and hauled their ATV to a neighboring piece of Crown Land where ATV use is permitted. This situation is not captured in the trip log data. In addition those households who indicated that they camped randomly, where ATV use is prevalent, were all excluded from the sample. The final result is that ATVs may have been used on their camping trips, but these activities are not incorporated into the revealed preference data.

[43] This type of site was more available in Alberta prior to the mid 1990s when the recreational areas were shifted from the Alberta Forest Service jurisdiction to fall now under the Alberta Parks Act. The roadways in parks are under the jurisdiction of the Off Highway and Highway Traffic Act, which prohibits the use of off highway vehicles (OHV or ATVs) on any roads or highways. Because parks are protected, areas activities are limited. Trails for ATV use have not been developed in these protected areas due to adverse environmental impact and liability issues (Bowes, 2000). The trail systems are usually on Crown Land under the responsibility of the Alberta Forest Service. In a few recreational areas that border on Crown land, staging areas have been developed nearby. In Saskatchewan the Parks Act (1986) and Regulation (1991) prohibit the use of ATVs in provincial park sites and specify that they may be used only in designated areas which are outside provincial park boundaries.

[44] The foothills model forest is located on the eastern slopes of the Rocky Mountains in Alberta.

Fisher, and Boxall (1999) found that 3% of the respondents camping in the provincial parks and 7% of the respondents camping in the provincial recreational areas indicated that they used ATVs while camping, compared to 54% of random campers.[45] Campers' use of ATVs reported in McFarlane, Fisher, and Boxall's study (1999) may be underreported because use of ATVs is illegal in provincial parks and recreational areas and as a result may not reveal the households' actual preferences.

Lack of accuracy of the results derived from the revealed preference data suggests that the results of the bargaining analysis may result in a misleading conclusion. As a result, these decisions may actually be more of a shared decision than the analysis in Chapter 6 indicates.

These results have particular implications for welfare measures. As Quiggin (1999) pointed out, if the decision is made in the household, then the household is the appropriate unit of measure. The difficulty arises in attempting to arrive at a household welfare measure. These results suggest that it is not sufficient to survey only one member of a household and then generalize from that response to the household.

It is evident from this study that theoretical frameworks and empirical research of group decision making need to consider all members of the decision-making process and where the decision fits in the hierarchy of decision-making structure. Individuals have different preference structures that they bring to the decision process. In conjunction with their preferences, they each have different power bases which they use to influence the decision process. In some instances, dependent on the good, the structure of the power dynamics of the household and the importance of the decision to members will influence the decisions being made. Quiggin (1999) and Smith and van Houvten (1999) have recognized that the neoclassical model of the household is not an appropriate framework

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[45] *Random camping* refers to camping on public lands where there are no facilities, no fees, and no close proximity to communities. Campers must be self-sufficient because there are no supplies such as firewood, drinking water, and fuel (McFarlane, Fisher and Boxall, 1999).

to analyze decisions made in the household. The empirical findings in this study suggest that examining a single decision in isolation without gaining some insight into the household decision-making structure, as a whole, will limit the researcher's ability to fully interpret the results. Household decision-making structures are complex, and as a result, models that integrate elements of cooperative and noncooperative household bargaining models will be better able to explain the relationships between different levels of household decisions and interpret the results more fully.

The comparison between the revealed preference data and stated preference data indicates that stated preference data are a more useful tool when analyzing household decisions. This method begins to untangle the individual preferences from the household preferences and allows for the examination of factors that influence the two individual sets of preferences towards the final household decision. One benefit of using a choice experiment framework is that it is difficult to answer strategically when answering the questions. In contrast, individuals' perceptions over the division of responsibility for decisions about shared goods may be influenced by the fact that they are reluctant to admit or deny authority over their partner (Turk and Bell 1972; Dobblesteen 1996). Each type of data has its inherent difficulties: perception data can be biased, revealed preference data have confounding effects due to its collinear nature, and stated preference data are based on hypothetical situations and do not always reflect actual decisions. In order to be able to understand household decision making, researchers need to conduct a number of different empirical investigations to cross validate their results. As well, a qualitative approach is warranted to begin to analyze the actual decision-making process in detail and to provide context to the results found in the multivariate analysis.

7.3 Caveats

There are several types of limitations of the study. They exist in the data collection process, in the type of survey instrument used, and the estimation procedures. The data collection process presented a number of difficulties. The first issue arose with

respect to collecting household and individual data from both partners. Identifying families appropriate for the sample was simply achieved through the in-person screening interviews; however, ensuring that individuals completed their surveys independent of their spouses was more difficult. In order for the empirical analysis to be valid, independent completion of the surveys was an imperative, but this could not be ensured.

A second caveat is that the data were collected on site. The sample is missing those people who chose not to camp at Meadow Lake Park or chose not to camp at all. Consequently, these results cannot be generalized to represent the entire population. This is because there is inadequate information on people do not camp at Meadow Lake Provincial Park and on those who bargained over camping and other holidays and chose not to camp. A larger sample that captures a better cross section of the population is needed to fully understand holiday vacation decisions.

Third, several issues arise from the use of a choice experiment. First, because it is a complex instrument, a portion of the surveys was not completed fully. Second, because these types of instruments can include hypothetical settings, if they are not carefully constructed, they can lack realism and as a result will not collect the information they were intended to collect. Every attempt was made in the design of these choice experiments to represent the available attributes of existing sites. One possible omission was made in the attribute types; a landscape attribute was not included. This was a result of the need to keep the number of attributes to a minimum.

A fourth difficulty was a result of trying to keep the survey a reasonable length. This affected the level of detail in the data in two areas. First, data on only the number of children and whether they fell into two age categories were collected. It would have been more useful to have the actual age of each child to allow for a better understanding of the effect of children on the decision outcome. Second, a more detailed list of the division of household responsibilities and questions about how decisions are made in the household,

particularly with respect to holiday and camping decisions, would have aided in the final interpretation of the results.

A fifth difficulty arose with the use of Likert scales. These were used for the questions on ideology and division of household responsibilities. There are problems with using Likert scales because of the possibility that some of the respondents might systematically rate the statements low, while others may rate them high. This problem is also affected by the size of the rating scale. These factors make it difficult to compare these data. The second problem with the Likert scales is that these variables have been categorized ordinally, while the other continuous variables in the model have been categorized cardinally. These ratings are only rough approximations that indicate the direction toward the household tends, ranging from traditional to nontraditional arrangements, and as such are used only as a rough proxy.

The final three caveats deal with estimation. The first deals with the estimation procedure. Due to the apparent shape of the likelihood function for the weighting parameter, it was impossible to conduct the estimation via maximum likelihood. In future studies, a situation should be chosen for which there is a more extensive range of actual goods that reflect both the preferences of women and men and for which the partners are more likely to actively bargain over.

A further caveat deals with the estimation of the revealed preference data. Typically, trip log data result in large choice sets that are difficult to estimate. The solution is the aggregation of the data, but this comes with an associated cost in the loss of estimation accuracy (Parsons and Needelman 1992; Herriges et al. 1999).

Finally, this estimation procedure does not address the issue of dynamics. Household decision making is a dynamic process that involves tradeoffs between partners for different decisions. For example, if one partner gets his or her way in one decision, the next decision may be the responsibility of the other partner. Or a decision on an issue may be important to one individual at one point in time, but over time the importance of

the decision lessens, and the other partner then becomes responsible for this issue. As well, decision responsibility often changes as children enter the household. Responsibility for decisions may evolve as the level of employment and commitment of the partners changes in the household or as the family moves through its life cycle. These dynamics are not captured in the research reported here.

CHAPTER 8

CONCLUSIONS

The goal of this research has been to address household decision making by combining experimental and revealed preference methods. This study develops an empirical method for examining each partner's preferences in the context of a household decision and examines how elements of marital power influence the household decision structure. Within the bargaining situations each individual has preferences regarding what he or she would like out of the decision. Each person also brings to the bargaining process a certain level of power or influence. The bargaining process consists of the players bringing forth their own preferences and trying to arrive at a solution. The underlying assumption of this process is that the outcome will most closely reflect the preferences of the individual who holds the most bargaining power or influence. According to marital power theory, bargaining power in a household arises from the individuals' income contributions, their access to the income, and their ideological beliefs, all of which are reflected in the household decisions and division of tasks.

Earlier examinations of group or household decision making have relied on revealed preference data. Data employed were often detailed household expenditure patterns, or respondents' perceptions of who makes the decision were employed, and these studies examine decisions about the goods in isolation from other decisions. What is not clear when researchers rely on revealed preference data is who actually has made the decision or who has had the most influence on the decision. These earlier methods fail to untangle the complexity of the decision process, because they were not able to uncover the influence or the bargaining power of each individual within the process. One of the major contributions of this research is to develop a method that brings together individual preference data and revealed household preference data to examine a shared household decision. This method compared individual and household preference structures, identifying whose preferences were best reflected in the household decision.

What became evident during the analysis is that household decision structures go beyond a single decision at any one time and that there is a system for decision making in each household. These systems of decisions will require the integration of cooperative and noncooperative elements of household bargaining models, incorporating elements of dynamics and more in-depth data collection to begin to unravel the complexity of this system.

A second contribution of this research is its demonstration that bivariate analysis is not able to provide information on the relationships between the independent variables. In order to understand the complexity of the household decision process, a method of analysis that captures the relationships between the determinants is necessary. The bivariate analysis is useful in identifying which relationships are potentially worth exploring in a multivariate framework. The revealed preference model provides indirect information on how household and personal factors affect the household preferences. In the gendered stated preference models, it becomes apparent that though there are some similarities in the interaction terms between the two models, there are some differences in the indirect factors that relate to the formation of individual's preferences. It is not until the weighting variable is analyzed in the bargaining analysis that we begin to understand what factors directly affect the power structure in household decisions for shared goods and who has more influence on the decision outcome.

A perspective not adequately examined here is how the actual decision-making process takes place, whether a hierarchy of household decision making exists, and at what levels of the decision hierarchy bargaining actually takes place. There are a number of other approaches that could be used to investigate the hierarchical decision structure. For example, one approach may be to utilize hierarchical models developed in the marketing literature (Shively, Allenby and Koln 2000). Another approach could be more in-depth interviews or focus groups may be useful in beginning to understand the decision process and what types of questions need to be addressed in future surveys. For

example, a small subsample of campers could have been interviewed in more depth about their decision-making process and household organization. The qualitative data could be used in designing modelling exercises that would provide a better contextual understanding of the decision process and how the power processes modify the power bases.

A third contribution of this study is that it suggests that results from perception data regarding who makes the decision may differ drastically from who actually has the most influence on a decision. Travel and leisure research have typically relied on perception data regarding who made the decisions to identify their potential target audience for possible advertisement campaigns (Jenkins 1978). The results presented here indicate that the perception of who makes the decision, in this case a shared decision, is markedly different from whose preferences most accurately reflect the household decision. These results suggest that perception data should not be used in isolation because the analysis may provide misleading results.

Future Research

This study raises the possibility of further research in many areas: first, the development of a richer household bargaining model that would take into account the complex system of household decisions. This system may involve a hierarchy of decisions with trade-offs between partners occurring at many different levels. These trade-offs or compromises may occur between decisions regarding different types of goods and/or performance of responsibilities. As well, some of these decisions will be joint decisions, while others are the responsibility of one partner or the other. There could be several reasons for a shift from joint decisions to specialized decisions, such as different opportunity costs of time or the assymetry of information. To be able to fully model a system of household decision making, one would need to understand more about the hierarchy of decisions and the potential shift points.

One initial step may be to examine several different types of goods which would begin to provide an insight into whether power structures and decision structures vary from good to good. A broader range of data collected on power processes and power outcomes, as well as the psychosocial data, would increase our understanding of household decision making. At this time it is not clear whether the power processes that are important in one type of decision will play an important role in another decision. In addition, another important element to understand is whether different strategies of income allocation vary for different types of goods. Another step may be to examine how household decisions are also made about the division of household tasks. This research could focus on the production of a household public good, such as division of household tasks or caring for children or the infirmed. This investigation could use time-use data as well as stated preference data.

The accumulation of this empirical evidence would gradually provide information about the relationship of decisions regarding different types of goods. It could reveal to researchers whether different theoretical frameworks are required to model different types of decisions. To fully develop a hierarchical model for a system of household decisions the relationship between these decisions must be understood. In-depth qualitative studies need to be conducted into how households make decisions, what their decision-making style is, and whether these change for different types of decisions. This type of information will better inform modellers regarding the overall hierarchy of decisions that exist in households. Ideally, dynamics would be incorporated into this hierarchical model.

An additional dimension that would be interesting to investigate is the role that children play in influencing decisions made within the household. In some households children have a direct voice into the decision-making process, while in other households children may have an indirect influence because decisions will be made to accommodate or please them. Another dimension that would be useful to understand is whether the

length of time a couple is together changes the individual preference structures. That is, do the preferences of partners become more similar over time, and is this a function of whether the couple has a happy and successful marriage? Finally, models should not ignore the role that social institutions play in creating the location of power and inequality in the household.

Decision making in households is a complex process, and to adequately model it will require substantial theoretical development and empirical research. This research study provided a glimpse inside the "black box," but substantially more research is needed to fully open it up.

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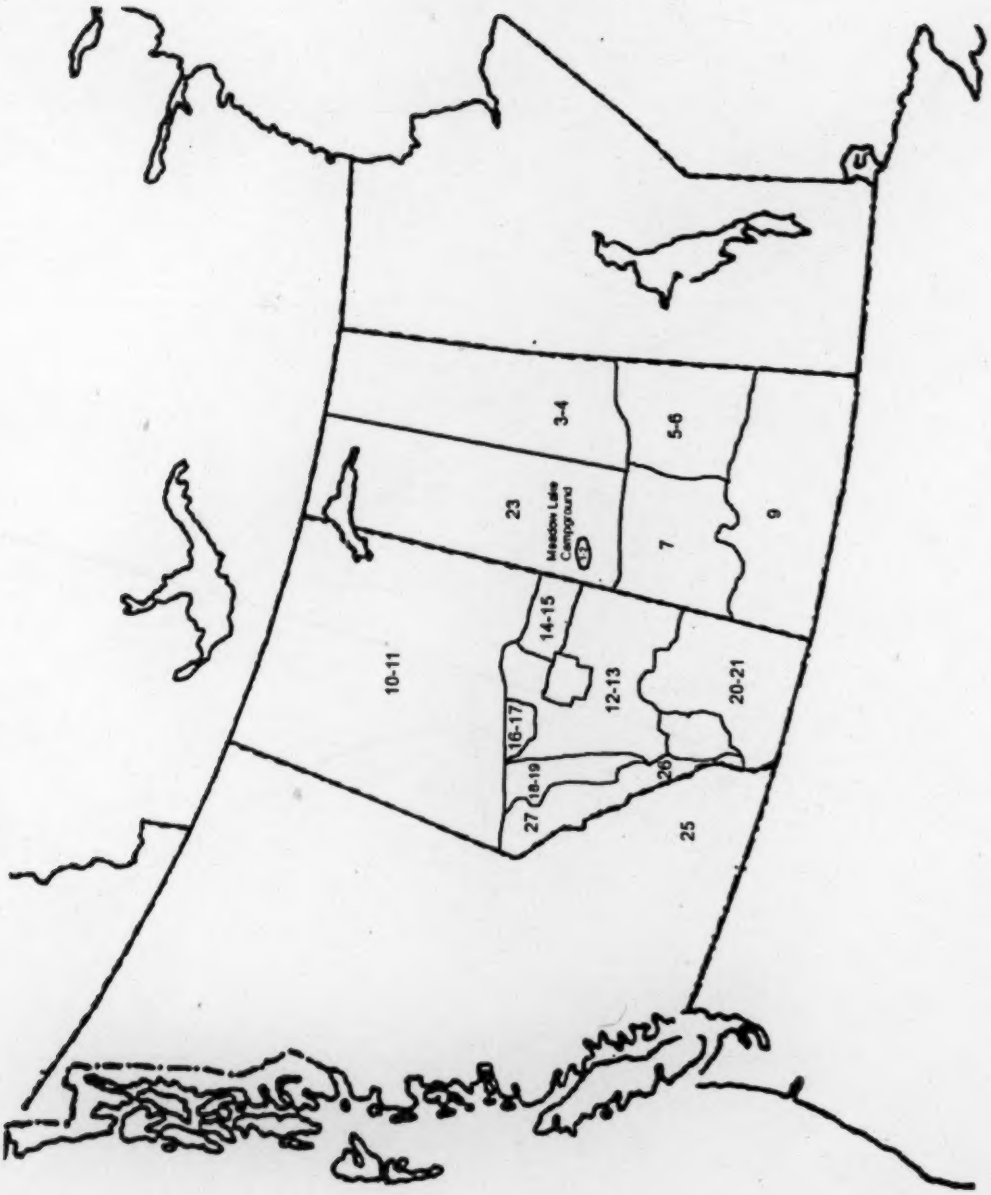
APPENDIX A

MAP



APPENDIX B

GLOSSARY OF TERMS

Please familiarize yourself with the terms listed below before answering the questions in Section B.

Type of Camping and Recreation Facilities Available:

Features	Pit toilets	Fire pits, picnic tables, garbage cans, and water pumps	Garbage pick up, and cleaning toilets	Flush toilets, electrical hookups and gravel tent pads	Showers and dump stations	Laundry facilities	Playground and boat launch	Tennis court, boat rentals and aquatic programs	Groceries and supplies available	Educational and recreational programs	Baseball diamond, miniature golf, water slides and arcade
Minimal facilities	✓										
Moderate facilities	✓	✓	✓				✓				
Well serviced	✓	✓	✓	✓			✓	✓	✓		
Fully serviced	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Firewood:

$5/bundle: Firewood is supplied at a cost of $5.00 for a 2 cubic foot bundle.
Free: Firewood is supplied and the cost is included in the camping fee.

Trails: Developed trails exist for cycling, and hiking.
Fishing: Lakes are stocked with fish.
ATVs (all terrain vehicles): Areas designated for ATV use near campground.
Beaches: There is a beach and swimming area within walking distance of your campsite.
Camping Fee: The fee per campsite per night.
Distances: This is the distance from your home to the campground.

APPENDIX C

AGGREGATED REGIONS BASED ON TRIP LOG DATA WITH THEIR ASSOCIATED ATTRIBUTE LEVELS

Site number	Site Location or Region	No. of trips taken	Location used for distance measurement	Facilities	Wood	Trails	ATV	Fishing	Road	Beach
1	Meadow Lake Provincial Park	84	Meadow Lake Provincial Park	Low	Free	Yes	No	Yes	Gravel to site	Yes
2	Meadow Lake Provincial Park	543	Meadow Lake Provincial Park	High	Free	Yes	No	Yes	Gravel to site	Yes
3	Northeast Saskatchewan	11	Candle Lake	Low	Free	No	No	Yes	Gravel to site	No
4	Northeast Saskatchewan	12	Candle Lake	High	Free	Yes	Yes	Yes	Gravel to site	Yes
5	East Central Saskatchewan	4	Naicam	Low	Free	Yes	No	Yes	Gravel to site	No
6	East Central Saskatchewan	14	Naicam	High	Free	Yes	No	Yes	Gravel to site	Yes
7	West Central Saskatchewan	28	Raddison	High	Free	Yes	No	Yes	Gravel to site	Yes
9	Southern Saskatchewan	26	Regina	High	Free	Yes	No	Yes	Gravel to site	Yes
10	Northern Alberta	11	Valleyview	Low	Pay for	Yes	No	Yes	Gravel to site	Yes
11	Northern Alberta	25	Valleyview	High	Free	Yes	No	Yes	Paved Road	Yes
12	Alberta heartland	27	Wetaskiwin	Low	Pay for	No	No	Yes	Paved roads	No
13	Alberta heartland	79	Wetaskiwin	High	Pay for	Yes	No	Yes	Paved roads	Yes

Site number	Site Location or Region	No. of trips taken	Location used for distance measurement	Facilities	Wood	Trails	ATV	Fishing	Road	Beach
14	Northeast Alberta heartland	40	Glendon	Low	Pay for	No	No	Yes	Gravel roads	Yes
15	Northeast Alberta heartland	60	Glendon	High	Pay for	Yes	No	Yes	Gravel roads	Yes
16	Northwest Alberta Heartland	8	Whitecourt	Low	Pay for	Yes	Yes	Yes	Gravel roads	Yes
17	Northwest Alberta heartland	24	Whitecourt	High	Free	Yes	No	Yes	Gravel roads	Yes
18	Southwest section of Northern Alberta heartland	35	Rocky Mountain House	Low	Pay for	Yes	No	Yes	Gravel roads	Yes
19	Southwest section of Northern Alberta heartland	9	Rocky Mountain House	High	Pay for	Yes	No	Yes	Gravel roads	Yes
20	Southern Alberta	8	Vauxhaul	Low	Pay for	Yes	No	Yes	Paved roads	Yes
21	Southern Alberta	30	Vauxhaul	High	Pay for	Yes	No	Yes	Paved roads	Yes
22	Northwest Saskatchewan	12	Town of Meadow Lake	Low	Free	No	No	Yes	Gravel roads	No
23	Northwest Saskatchewan	40	Town of Meadow Lake	High	Free	Yes	No	Yes	Gravel roads	Yes
25	Southern British Columbia	34	Kelowna	High	Free	Yes	No	Yes	Paved roads	Yes
26	Southern Mountain Parks	30	Banff	High	Pay for	Yes	No	No	Paved roads	No
27	Northern Mountain Parks	20	Jasper	High	Pay for	Yes	No	No	Paved roads	No
	Total number of trips taken	1214								

APPENDIX D

MEADOW LAKE PROVINCIAL PARK SURVEY 1999

Campground:_____ Interviewer:_____

Date:_____ Time:_____ Camp Site Number:_____

Hello, my **name** is _____ and I am working on a research project at the **University of Alberta**.
Have you already been interviewed by anyone this summer about your recreational activities in Meadow Lake Provincial Park? (If yes, thank them and leave. If no, continue.)
We are doing a study of recreational use and choices in Meadow Lake Provincial Park. Your responses will provide the **Park Administration** with valuable information that will be used in future plans. Could I have about **10 minutes** of your time to ask you some questions about camping? (If no, thank them and leave).
All the information that you provide is confidential. You do not have to answer questions if they make you uncomfortable.

INTERVIEW BEGINS HERE:

1. Have you ever been to this campground together before?
   0. No (go to question 2)
   1. Yes

   When was the first time you camped in Meadow lake Provincial Park?
   _____

   How many times have you both visited this campground together in the past?
   _____

2. How many times do you expect to camp in Meadow Lake Provincial Park this year?
   _____ times

Comments:_____
_____
_____

3. On this trip how many nights will you stay at this campground? _____ nights

4. Are you on summer holidays? (Summer holiday involves taking time off work.)
   0. No
   1. Yes

5. Is this the campground you originally intended to camp at?
   0. No Where did you intend to camp?
   1. Yes

6. Have you or will you camp or stay at other locations during this trip?
   0. No
   1. Yes Do you know where?

_____

7. In total, how many people are in your camping party?
   Over 18 _____
   Under 18_____

8. Does your camping party consist of (choose more than one if necessary):
   1. immediate family/household
   2. extended family
   3. family and friends
   4. Other: _____

9. I am going to read a list of activities and I'd like you to tell me whether your camping party will do any of these activities **while staying at this campsite.** Just say "yes" or "no" as I read them. **(Circle the number.)**
   1. fishing
   2. canoeing/ paddleboating
   3. boating/personal watercraft
   4. swimming
   5. quadding/dirt biking/ATVing
   6. birdwatching (using binoculars to identify birds).
   7. relaxing and visiting
   8. watching other wildlife
   9. walking or day hikes
   10. backpacking (overnight)
   11. mountain biking
   12. sightseeing (driving)
   13. attending educational programs
   14. other: _____

10. Which **ONE** of these activities will your camping party participate in the most while you are here? _____

(Only ask 11-17 if the respondent is potentially part of the sample.)

11. Has your camping party visited Meadow Lake Provincial Park in the fall or winter?
   0. No (go to question 13)
   1. Yes In the: 1. Fall 2. Winter or 3. Both?

12. What activities does your camping party participate in (in Meadow Lake Provincial Park) during the fall or winter? **(Circle the number.)**
   1. fishing
   2. hiking
   3. backcountry camping
   4. mountain biking
   5. sightseeing
   6. birdwatching
   7. canoeing
   8. watching wildlife
   9. camping
   10. boating or personal water craft
   11. hunting
   12. cross-country skiing
   13. snowmobiling
   14. quadding/dirt biking/ATVing
   15. other: _____

13. Which province or country does your family/household live in? **(Circle the number.)**

1. British Columbia
2. Alberta
3. Saskatchewan
4. Manitoba
5. Ontario
6. Quebec
7. New Brunswick
8. Nova Scotia
9. Prince Edward Island
10. Newfoundland
11. Yukon Territories
12. Northwest Territories
13. Nunavut
14. Other: _____

Which village, town, city or community do you live in?

_____

14. How long have you lived there? _____ years (months _____)

15. Including yourself, how many people currently live in your household? _____ people

16. How many of these people are under 18 years old? _____ people

17. What type of camping equipment do you own? (circle all that apply)

1. tent
2. RV
3. van
4. trailer
5. truck camper
6. tent trailer
7. other: _____

18. Has your camping party see any wildlife while camping in Meadow Lake Provincial Park?

0. No (go to question 19)
1. Yes

19. Is wildlife watching an important factor in choosing this Park?

0. No
1. Yes

20. Do you feel that there are enough campsites serviced with electricity in the Meadow Lake Provincial Park?

0. No
1. Yes

21. Respondent is: 0. Man. 1. Woman. 2. Both

(Only if the respondent and family/partner are on summer holidays do you ask them if they are willing to participate in the mail survey.)

We are wondering if you would be willing to participate in the second part of this study?

(Hand the respondent the information sheet.)

In the second part of our study we are **mailing surveys** to selected participants of this study, which will take about **half an hour of your and your partner's time**. We are interested in understanding **what you and your partner like and do not like about your camping experiences**. These surveys will provide us with more information on your family/ household's outdoor recreation choices. If you agree to participate, we will send two surveys to your house, one for you and your partner to complete. Each survey will have different questions and it is very important that **each individual completes** their survey on their own. Because only a **small number** of people will be asked to participate it is important that both surveys are returned to us.
Data from the surveys will be kept **confidential** and will not be made available to anyone other than the researchers. A **summary** of the results will be passed on to the **Park Administration** for future planning purposes. When you return your completed surveys your names will be entered into a **prize draw**. The prizes include **weekend camping pass** for Meadow Lake Provincial Park and a $??? **gift certificate from Canadian Tire**. Would **both you and your partner** be willing to participate in the second part of our study?

0. No
1. Yes (Record names, address and ID number on information and record sheet).

I.D. Number _____

THANK YOU VERY MUCH FOR YOUR TIME!

Respondent's comments: _____

_____

Interviewers comments: _____

_____

Meadow Lake Provincial Park Camping Survey

Two different surveys have been provided, and we need each partner to complete their own survey. It is very important that we collect information about what each person likes and dislikes about their camping experiences and how household holiday locations are chosen.

Please answer all of the questions by circling, checking or writing in the space provided. However, if there are any questions you do not wish to answer, leave them blank and move to the next question.

All information provided is strictly **CONFIDENTIAL.** Only a summary of the results will be published and provided to the Provincial Park Administration.

Reminder: Early bird draw for surveys returned by September 1, 1999 and final draw for all surveys returned by September 30, 1999.

A chance to win with each survey returned.

Participant A

UNIVERSITY OF ALBERTA

Department of Rural Economy
515 General Services Building
University of Alberta
Edmonton, AB T6G 2E1

A. YOUR CAMPING EXPERIENCE

In this study we are trying to understand how important camping is to you. Please answer the following questions about your camping experiences.

1. How many years has it been since you started camping? (*Check (✓) only one*)

☐1 1 to 5 years	☐4 16 to 20 years
☐2 6 to 10 years	☐5 21 to 25 years
☐3 11 to 15 years	☐6 More than 25 years

2. Listed below are several statements on what camping may mean to you. Please indicate how you feel about these by checking the box that best reflects your level of agreement with each statement. (*Check (✓) only one box in each row.*)

Statement	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
a. Camping is one of the most enjoyable things I do.	☐1	☐2	☐3	☐4	☐5
b. Camping offers me relaxation when life's problems build up.	☐1	☐2	☐3	☐4	☐5
c. Camping is nothing more than a place to stay while I do other things.	☐1	☐2	☐3	☐4	☐5
d. I find a lot of my life is organized around camping.	☐1	☐2	☐3	☐4	☐5
e. Most of my friends like camping.	☐1	☐2	☐3	☐4	☐5
f. I like to camp several times each summer.	☐1	☐2	☐3	☐4	☐5

B. YOUR CHOICE OF CAMPING AREA

The following tables describe imaginary campgrounds and will help us understand what trade-offs you make when choosing a camping area. Imagine that you are planning a camping trip and these are the only sites available as all other sites are closed. As an individual, choose which option you would prefer if you had the final say and check the appropriate box.

This section does not reflect potential policy changes in the Meadow Lake Provincial Park.

Please refer to the green glossary sheet for definitions.

For Example:

Features	Campsite A	Campsite B	Stay home
Type of camping area	Minimal Facilities	Moderate Facilities	
Firewood	$5/bundle	Free	
Trails	Yes	No	
ATV	No	Yes	
Fishing	No	Yes	
Road Quality	Paved	Paved, gravel last 25 km	
Beaches	Yes	No	
Camping fees	$14	$21	
Distance from home	50 km	200 km	
Which of the above camping options would you choose? (Check only one.)	☐1	☑2	☐3

Version 3, Task 1

Features	Campsite A	Campsite B	Stay home
Type of camping area	Fully Serviced Facilities	Minimal Facilities	
Firewood	$5/bundle	Free	
Trails	No	Yes	
ATV	No	Yes	
Fishing	No	Yes	
Road Quality	Paved, gravel last 25 km	Paved, gravel last 25 km	
Beaches	No	Yes	
Camping fees	$14	$14	
Distance from home	300 km	100 km	
Which of the above camping options would you choose? (Check only one.)	☐1	☐2	☐3

Version 3, Task 2

Features	Campsite A	Campsite B	Stay home
Type of camping area	Well Serviced Facilities	Fully Serviced Facilities	
Firewood	Free	Free	
Trails	No	Yes	
ATV	Yes	Yes	
Fishing	No	No	
Road Quality	Paved, gravel last 25 km	Paved	
Beaches	Yes	Yes	
Camping fees	$28	$21	
Distance from home	300 km	500 km	
Which of the above camping options would you choose? (Check only one.)	☐1	☐2	☐3

Version 3, Task 3

Features	Campsite A	Campsite B	Stay home
Type of camping area	Fully Serviced Facilities	Well Serviced Facilities	
Firewood	Free	Free	
Trails	Yes	No	
ATV	No	No	
Fishing	No	No	
Road Quality	Paved, gravel last 25 km	Paved	
Beaches	Yes	Yes	
Camping fees	$7	$7	
Distance from home	100 km	100 km	
Which of the above camping options would you choose? (Check only one.)	☐1	☐2	☐3

Version 3, Task 4

Features	Campsite A	Campsite B	Stay home
Type of camping area	Fully Service Facilities	Fully Serviced Facilities	
Firewood	Free	$5/bundle	
Trails	Yes	Yes	
ATV	Yes	Yes	
Fishing	Yes	No	
Road Quality	Paved	Paved, gravel last 25 km	
Beaches	Yes	No	
Camping fees	$14	$7	
Distance from home	100 km	500 km	
Which of the above camping options would you choose? (Check only one.)	☐1	☐2	☐3

Version 3 Task 5

Features	Campsite A	Campsite B	Stay home
Type of camping area	Well Serviced Facilities	Minimal Facilities	
Firewood	$5/ bundle	$5/ bundle	
Trails	Yes	Yes	
ATV	No	Yes	
Fishing	Yes	No	
Road Quality	Paved	Paved	
Beaches	No	No	
Camping fees	$28	$28	
Distance from home	100 km	100 km	
Which of the above camping options would you choose? (Check only one.)	☐1	☐2	☐3

Version 3, Task 6

Features	Campsite A	Campsite B	Stay home
Type of camping area	Moderate Facilities	Minimal Facilities	
Firewood	Free	$5/bundle	
Trails	Yes	No	
ATV	Yes	Yes	
Fishing	Yes	Yes	
Road Quality	Paved, gravel last 25 km	Paved	
Beaches	Yes	Yes	
Camping fees	$7	$28	
Distance from home	300 km	700 km	
Which of the above camping options would you choose? (Check only one.)	☐1	☐2	☐3

Version 3, Task 7

Features	Campsite A	Campsite B	Stay home
Type of camping area	Well Serviced Facilities	Moderate Facilities	
Firewood	$5/ bundle	Free	
Trails	No	Yes	
ATV	No	Yes	
Fishing	Yes	No	
Road Quality	Paved	Paved	
Beaches	Yes	Yes	
Camping fees	$7	$7	
Distance from home	700 km	700 km	
Which of the above camping options would you choose? (Check only one.)	☐1	☐2	☐3

Version 3, Task 8

Features	Campsite A	Campsite B	Stay home
Type of camping area	Fully Serviced Facilities	Moderates Facilities	
Firewood	$5/ bundle	$5/ bundle	
Trails	No	No	
ATV	Yes	No	
Fishing	Yes	No	
Road Quality	Paved	Paved	
Beaches	No	No	
Camping fees	$7	$14	
Distance from home	300 km	500 km	
Which of the above camping options would you choose? (Check only one.)	☐1	☐2	☐3

C. ABOUT YOU

In this section, we would like to ask a few questions about you to see if your background influences your camping choices.

1. Sex: ☐1 Male ☐2 Female

2. In which province did you spend your childhood?

☐1 British Columbia ☐5 Ontario ☐9 Prince Edward Island
☐2 Alberta ☐6 Quebec ☐10 Newfoundland
☐3 Saskatchewan ☐7 New Brunswick ☐11 Yukon Territory
☐4 Manitoba ☐8 Nova Scotia ☐12 Northwest Territories
☐13 Other: _____

3. Did you grow up in an urban or a rural setting?

☐1 Rural area – living on an acreage or farm.
☐2 Small town (population of under 10,000 – e.g. Meadow Lake town or Vegreville)
☐3 Mid-size town (population between 10,000 and 50,000 – e.g. North Battleford or Grande Prairie)
☐4 Urban area (population over 50,000 – e.g. Saskatoon or Red Deer)

4. Did you camp as a child? ☐1 No ☐2 Yes

C. ABOUT YOU CON'T

5. Did you camp in Meadow Lake Provincial Park as a child? ☐1 No ☐2 Yes

6. Which age group do you belong to?

☐1 18-25 ☐2 26-35 ☐3 36-45
☐4 46-55 ☐5 56-65 ☐6 65+

7. Do you belong to a hunting, fishing, conservation, environmental, birdwatching, or natural history association (e.g. Ducks Unlimited, Canadian Wildlife Federation)? ☐1 No ☐2 Yes

8. Which is the highest level of education that you have completed? (*Check (✓) only one*)

☐1 Never attended school
☐2 Grade school (grades 1 to 6)
☐3 Junior high school
☐4 High school graduate
☐5 Technical school
☐6 Some university
☐7 Undergraduate university degree
☐8 Some graduate study
☐9 Post graduate university degree

9. Are you employed?

☐1 part-time ☐2 full time ☐3 stay at home
☐4 seasonal ☐5 student ☐6 unemployed
☐7 other, please specify:_____

_____

_____

_____

_____

D. ABOUT YOUR HOUSEHOLD

Household recreational choices may be influenced by how household tasks and finances are organized. The following questions are designed to collect some of this information. Please remember that all answers are CONFIDENTIAL and that you do not have to answer all the questions.

1. Please indicate if the following areas are primarily your own or your partner's responsibility, or are equally shared. If the questions do not apply now, please respond with what you think would happen if they did apply. (*Check (✓) only one box in each row.*)

Statements	Primarily your own responsibility	Responsibility shared between you & your partner	Primarily your partners' responsibility
a. In your household, who usually decides the holiday location?	☐1	☐2	☐3
b. Who usually decides when to take household holidays?	☐1	☐2	☐3
c. Who would have the final say over which type of new vehicle to purchase?	☐1	☐2	☐3
d. Who usually has the final say over whether new camping equipment is purchased?	☐1	☐2	☐3
e. Who usually stays home to look after your children if they were ill?	☐1	☐2	☐3
f. Who provides the primary care to your children?	☐1	☐2	☐3
g. Who usually prepares the main meal each day in your household?	☐1	☐2	☐3
h. Who is primarily responsible for the housework?	☐1	☐2	☐3

D. ABOUT YOUR HOUSEHOLD CON'T

2. Please indicate whether you agree, disagree or are indifferent to these statements. If the questions do not apply to you at present, please respond with what you think would happen if they did apply.
(Check (✓) only one box in each row.)

Statement	Strongly Agree	Agree	Indifferent	Disagree	Strongly Disagree
a. I would like to stay home to look after my pre-school children.	☐1	☐2	☐3	☐4	☐5
b. My partner's career is more important than mine.	☐1	☐2	☐3	☐4	☐5
c. I like to call or write my family regularly.	☐1	☐2	☐3	☐4	☐5
d. My role should be the primary breadwinner in my household.	☐1	☐2	☐3	☐4	☐5
e. I like to organize our social life.	☐1	☐2	☐3	☐4	☐5
f. I would like my partner to stay home and look after the kids.	☐1	☐2	☐3	☐4	☐5

3. How do you and your partner manage your household income?

- ☐1 We share and manage our household finances jointly.
- ☐2 We keep our finances completely separate.
- ☐3 I am given a housekeeping allowance. My partner looks after the rest of the money.
- ☐4 My partner is given a housekeeping allowance. I look after the rest of the money.
- ☐5 I look after all the household's money except my partner's personal spending money.
- ☐6 My partner looks after all the household's money except my person spending money.
- ☐7 Some other arrangement, please specify:_____

_____

_____

_____

_____

D. ABOUT YOUR HOUSEHOLD CON'T

4. What percentage of the total household income (before taxes) did you contribute in 1998?
(Check (✓) only one)

- ☐1 no personal income
- ☐2 1-10%
- ☐3 11-25%
- ☐4 26-50%
- ☐5 51-75%
- ☐6 76-90%
- ☐7 91-100%

5. Which category best describes your total household income (before taxes) in 1998? *(Check (✓) only one)*

- ☐1 less than $10,000
- ☐2 $10,000 to 19,999
- ☐3 $20,000 to 29,999
- ☐4 $30,000 to 39,999
- ☐5 $40,000 to 49,999
- ☐6 $50,000 to 59,999
- ☐7 $60,000 to 69,999
- ☐8 $70,000 to 79,999
- ☐9 $80,000 to 89,999
- ☐10 $90,000 to 99,999
- ☐11 $100,000 or more

TRIP LOG OF YOUR HOUSEHOLD CAMPING TRIPS

In trying to understand what people like and dislike about camping locations it is useful to know their past camping choices. Please complete a trip log of the camping trips that you and your partner went on together over the past year including any holidays with your dependent children, vacation and weekend trips, if applicable.

This information is very important. Please try your best to complete this section. Should you need more than the space provided you can record the trips on a separate sheet, if you want.

Example:

Dates	Location of trip	Who decided this location?	Duration of trip	Accommodation	Main activity	Mode/s of transport	Number of Campers
May 1997	Meadow Lake	My partner and I	5 days	Tent	Fishing	Car	5
Sept. 1997	Jasper	My partner	4 days	RV	Hiking	RV	2
June 1998	Alaska	Myself	8 days	RV	Sightseeing	RV	5

YOUR HOUSEHOLD'S CAMPING TRIP LOG

Dates	Location of trip	Who decided this location?	Duration of trip	Accommodation	Main activity	Mode/s of transport	Number of Campers

If you have any additional comments about the questionnaire and/or camping in Meadow Lake Provincial Park please use the space below. Your name will not be associated with these comments when they are published as part of any report.

_____

_____

_____

_____

_____

_____

_____

_____

_____

Thank you for taking the time to complete this survey.

Please return both completed surveys in the enclosed postage paid envelope.

Reminder: Early bird draw for surveys returned by September 1, 1999 and final draw for all surveys returned by September 30, 1999.
A chance to win with each survey returned.

Donna Dosman
Research Associate
Phone: (780) 492-3610
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Professor
Phone: (780) 492-4603
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APPENDIX E

DESCRIPTIVE STATISTICS

Household Specific Descriptive Statistics

Variables	Mean	Median	Std Deviation	Minimum	Maximum
Adults	2.2	2.0	0.50	2	5
Children	1.6	2.0	1.19	0	5
Household size	3.8	4.0	1.23	2	8
Income level	67 754	65 000	23 344	5000	105000

Individual Specific Descriptive Statistics

Variables	*Female*					*Male*				
	Mean	Median	Std	Max	Min	Mean	Median	Std	Max	Min
Age	41.7	40.5	10.8	70.0	21.5	44.8	40.5	10.6	70.0	21.5
Education level	13.3	14.0	2.2	20	0	13.3	14.0	2.6	20	6
Camping experience	20.4	23.0	7.9	27.0	3.0	21.50	27	7.5	27.0	3.0

APPENDIX F

DECISION-MAKER FOR TRIP LOCATION BASED ON TRIP LOG

(N=1052 TRIPS)

Decision maker	Proportion
Husband	5.8
Wife	3.8
Both	65.0
Friends	2.7
With other family	7.3
Non-response	15.3
	100